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A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
MITCHELL BROS. COMPANY,
(INCORPORATED.)

VOL. V.

CHICAGO, ILLINOIS, MAY 15, 1887.

No. 11.

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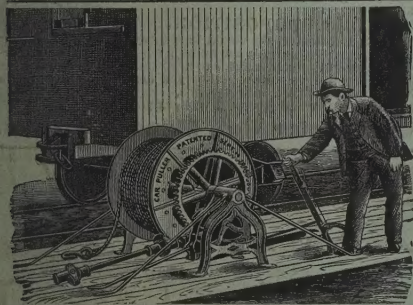
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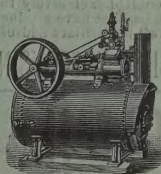
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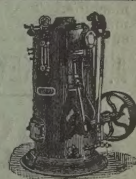
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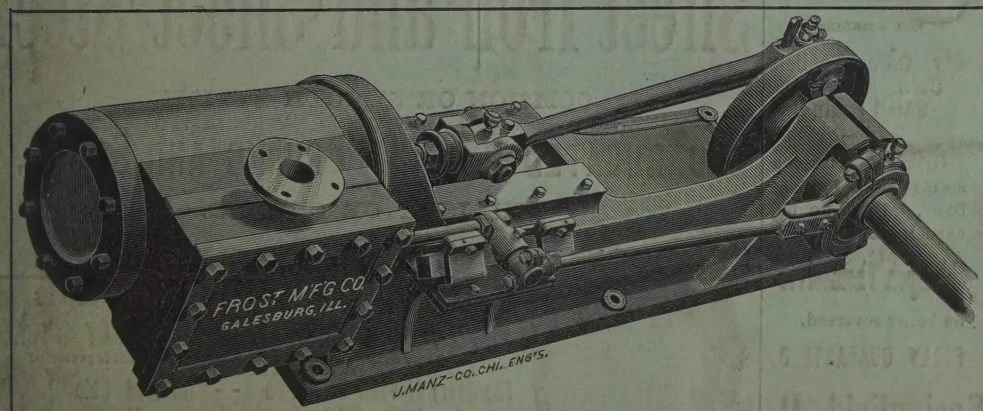
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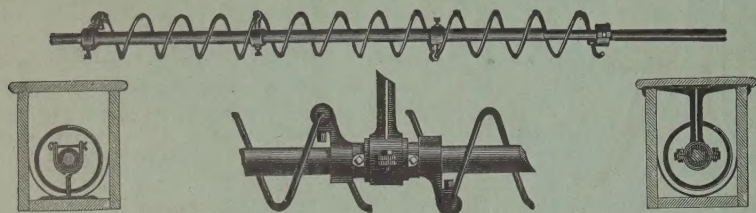
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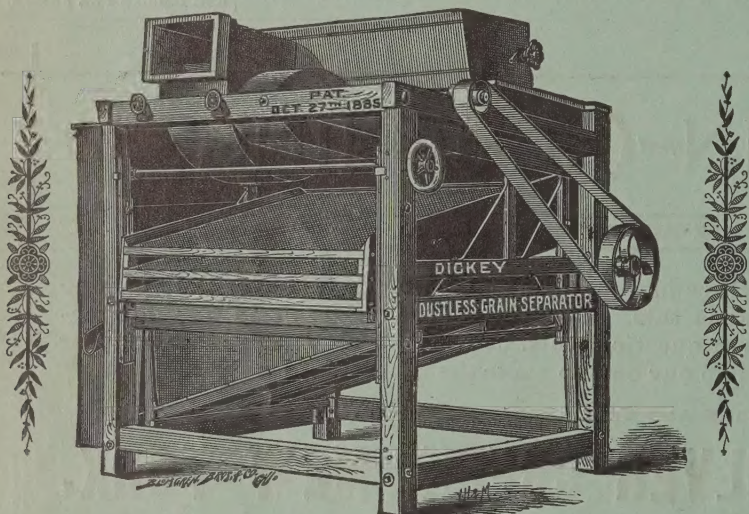
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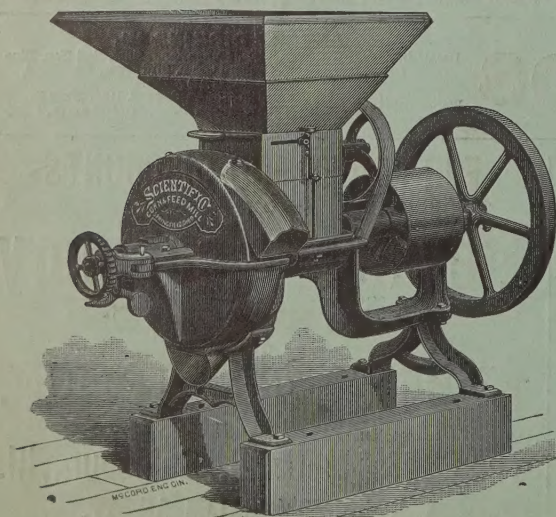
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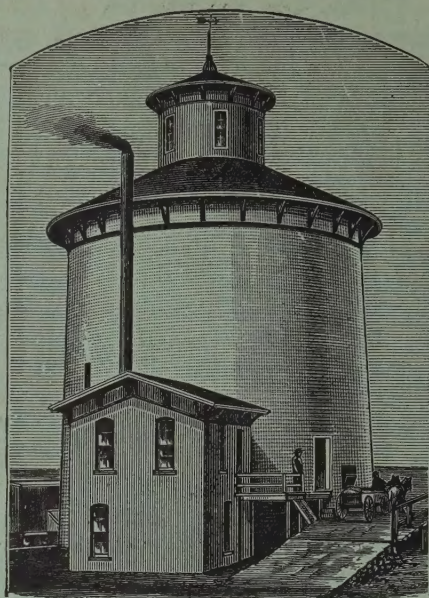
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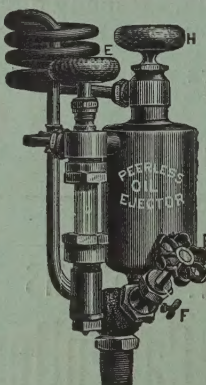
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A GERMAN GRANARY.

European buildings for the storage and handling of grain differ not only in the means and processes employed, but in their general architectural features. The American elevator is certainly not a thing of beauty, though no one will dispute its eminently practical character. Some few of our storage houses have been constructed with a view of pleasing the eye, but none of them compare with the large "Silos" in other countries in beauty of design. But we can easily allow our European friends the shell, while we retain the kernel of convenience in interior arrangement and management.

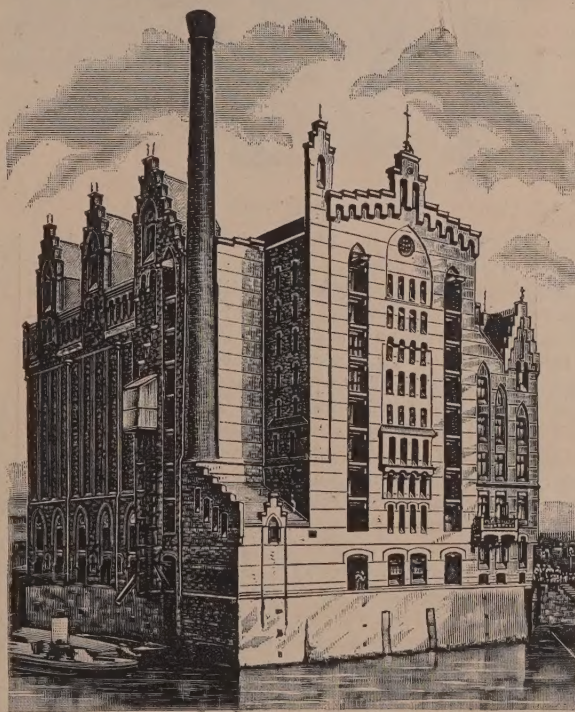
Our illustration on this page shows "Der Silo-Speicher" at Hamburg, Germany. The interior has been remodeled into an entire floor granary since the view was taken. Before this change, four elevators, each with a capacity of seventy tons per hour, were located in different parts of the Silo for handling the grain. Seven belt conveyors, two alongside the building and five across the same, were employed to convey grain to any part of the building. The floor beneath the bins was made sufficiently high to allow the grain to be sacked and the sacks to drop into vehicles. Three traveling belts crossed the building on that floor for the purpose of transmitting grain to one of the elevators, or conveying sacks of grain to the outside platform.

No cleaning machinery was used in the Silo. The grain was brought into the building by three different ways. The vessel elevator raised grain from the hold of boats to the weighing machine within the building, whence it was conducted away by the traveling bands. Large boats and steamers which could not come alongside were discharged by a floating elevator, which delivered the grain on an underground band. Cars and vehicles entered the building by the siding, and their contents were emptied into the basement, whence belts carried the grain to the elevators. Grain was delivered to boats and vehicles in the same manner. This granary was erected by Alexander Schaeffer, of Hamburg.

A law passed by the last Minnesota legislature fixes sixty pounds as the weight of a bushel of wheat, clover seed or potatoes; fifty-six pounds for a bushel of rye or corn; thirty-two pounds for a bushel of oats; forty-eight pounds for a bushel of barley; forty-two pounds for a bushel of buckwheat, and twenty-eight pounds for a bushel of dried apples or peaches. Any person taking a greater number of pounds for a bushel of either of the above-mentioned articles is liable to a fine of not less than \$5 nor more than \$100, or by imprisonment in the county jail for not more than ninety days, or by both such fine and imprisonment.

WHEAT, OATS AND MAIZE.

In the course of a lecture on this subject, Mr. Harvey Gibson remarked that there are over 300 varieties of wheat, classified as bearded, beardless, white, red, summer, winter, etc. One of the most prolific of all the forms is the buncy kind known as mummy wheat, which is very delicate and difficult to raise. It is not produced, as is com-



GRANARY AT HAMBURG, GERMANY.

monly supposed, from wheat which had been found in the hands of a mummy, for the grains which have been found after a burial of a couple of thousand years have lost their vitality and will not grow. The wheat plant is one which is readily acclimatized, and various experiments have shown that winter wheat can be changed to summer wheat in a very short time, and vice versa. The early French settlers in Canada found that their winters were too severe and their summers too short for French wheat, but by using English and Russian wheat they could raise a crop. By a knowledge of the laws governing the growth of the plant, almost any grain can be modified to new conditions owing to its adaptability. It is the suitability of each sort to each soil that will enable the farmer to pay his rent by sowing one variety, when he would be unable

to do so by attempting to grow another of an apparently better sort. Questions of soil and climate ought to be understood by those who cultivate the land, for some of the results in wheat raising are extraordinary.

Few English wheats flourish in Scotland. French wheat in the West Indies only produces barren spikes, and Indian wheat in England produces miserable heads. Black Sea wheat sown near Paris produces heavier grain than it does in Russia, but when resown near the Black Sea becomes once more as light as the parent. Red wheat is more hardy and prolific than white, but is of inferior quality and yields less flour. Long-strawed varieties suit best for wet seasons; short ones, dry seasons. Wheat is supposed to be a native of Central Asia, but its use ante-dates history. It has been asserted that it was derived from a "hard grass" found on the shores of the Mediterranean, known to botanists as *Ogilops ovata*. In 1838 Prof. Fabre planted some of this "hard grass" to test the matter, and by careful selection of the best seeds he ultimately produced a small kind of wheat. This took eight years. About 1855 another professor tried the same experiment, and from the "wild grass" raised a fair wheat in five years. Man cultivated the soil at a very early period, and used wheat, which has been found along with their flint implements. How wheat was first discovered, or where, it is impossible now to say; but the grains of the lake-dwellers were much smaller than our present wheat, and it is evident that many ancient varieties of wheat became extinct before history began. In earlier days, in our own country, wheaten bread was confined exclusively to the rich, and it was only toward the end of the seventeenth century that it became common among the people.

In some parts of Great Britain it is still counted as a luxury, and in the North of Scotland "bread" means oaten bread, while the wheaten bread, used on occasions, is dignified by the name of "loaf."

While England has produced more wheat per acre than any other country, owing to superior farming, Ireland has never been either a great wheat-producing or wheat-consuming country.

All the varieties of oats are cultivated. There is no single form known in a wild state, the nearest approach being what is called the wild oat, or, botanically, *avena fatua*. The probabilities are that this grass comes from a single prehistoric form, a native of East temperate Europe or Tartary, where it is grown at the present day; but the earliest mention of the cereal is found in Chinese history in the year 618 A. D. It was well known to the Greeks and Romans, and was certainly grown in Asia Minor. The lake-dwellers of Switzerland grew it, and nearly all the early European people seem to have been familiar with it. In the United Kingdom the acreage un-

der oats is about 4,000,000, yielding thirty-one bushels per acre. In Russia there are 33,000,000 acres under cultivation, yielding, however, only sixteen bushels per acre.

Maize is another of the grasses (*gramine*), but in this the flowers are unisexual, the male ones being highest and dropping the pollen onto the lower female flowers, and thus fertilizing them. There are over 200 varieties of maize, and, like many other grasses, it is easily adapted to variations in soil and climate, within certain limits. The form of the ear being different from the other cereals, it requires a different method of treatment, both in cultivation and in threshing. It flourishes best in a sandy alluvial soil, next in a gravelly and slaty loam, but will scarcely grow at all in a clay soil. It requires a short, hot summer, and will ripen even in pure sand, but in parts of England where the temperature would suit it the soil is of clay. It has been tried several years in Surrey, but the average heat of an English summer is not sufficient for its successful cultivation. It is a highly productive plant, yielding from 300 to 400 per cent., and, cooked in American style, it forms a nutritive and tasty dish, but it has not become popular in Europe. The efforts made to introduce it as an article of diet amongst the people of Europe—tried when flour was high—have all failed. The Americans have such immense crops of it that they feed their hogs with it, and use it up in all kinds of ways. It is essentially an American plant, being quite unknown in Europe before the days of Columbus.

SPEED OF ELEVATORS.

Mr. Geo. Walker writes to the *Milling World* a criticism of some of Mr. Abernathy's statements in regard to the speed of elevators. Quoting Mr. Abernathy Mr. Walker says: "Forces generated by different sizes of pulleys making different revolutions are to each other as the number of revolutions multiplied by the diameter of the pulleys." The correct statement is, that centrifugal force varies as the square of the number of revolutions in a given time, multiplied by either the radius, diameter or circumference of the circle of gyration of the revolving body. Again, the writer says in effect that a 60-inch and a 20-inch pulley revolving with equal surface speed will generate equal centrifugal force, but that the small pulley will discharge about three times as much as the large one. This is a strange muddle of contradictory statements.

They would discharge equal quantities in equal times, belts and cups being alike, and the latter equal distances apart. The centrifugal force of the 20-inch pulley would be three times as great as that of the 60-inch pulley at the surface of the rims, when the surface speed is equal. To give the 20-inch pulley the same centrifugal force as the 60-inch pulley the revolutions of the former should be 1.732—times that of the latter in the same time. From the above I deduce the following original formulae for determining the number of revolutions for any diameter to generate equal centrifugal force with any other diameter giving a stated number of revolutions in a given time, one minute for instance. Let D —a stated diameter; let N —its revolutions per minute; let F —its centrifugal force; let d —any other diameter; let n —its revolutions per minute; let f —its centrifugal force. Then to find the number of revolutions of the latter to develop equal centrifugal force with $D N^2$;

the former, make $n = \sqrt{\frac{D N^2}{d}}$ —then will $f = F$. As in this

case, give the 20-inch pulley forty revolutions per minute, $\frac{20 \times 40^2}{60 \times 60} = 23.094$ —revolutions per min-

ute for the 60-inch pulley to give equal centrifugal force with the 20-inch pulley at forty revolutions per minute. Hence it follows that whatever the ratios of diameter and centrifugal force of one revolving circle to that of another, which is stated, may be, the revolutions of the former, to give it any desired ratio of centrifugal force in relation to that of the latter, may be found as follows: Let m —the ratio of centrifugal force of the one

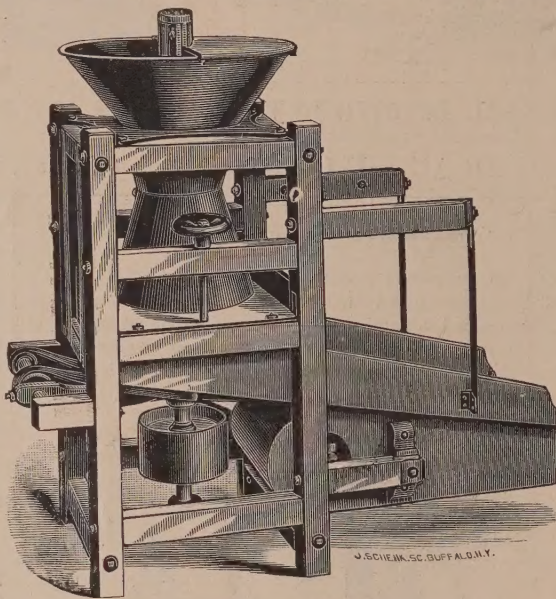
to the other. Then $\sqrt{\frac{D N^2 m}{d}} = n$ —the number of revolutions to give the required centrifugal force. Let $D = 20$,

$N = 40$, $d = 60$ as before; $m = 4$; thus $\sqrt{\frac{20 \times 40^2 \times 4}{60 \times 60}} = 46.1888$ revolutions per minute to the 60-inch diame-

ter to cause it to generate 4 times the centrifugal force of the 20-inch diameter at 40 revolutions per minute. I might elaborate and give various transpositions of these formulae, but it being comparatively non-essential, and time somewhat pressing, I submit it as it is, for the benefit of those who may profit by it, and for the criticism of the competent.

THE DIAMOND CORN SHELLER.

It takes capital, experience and energy to achieve success in any line of manufacturing. Here, for instance, is the "Diamond" Corn Sheller, a machine that has been before the public for a number of years (since 1879), which has made a most excellent reputation for rapidity and efficiency of operation, which will shell without waste either wet or dry corn, and in the use of which no clogging or choking takes place. Yet, it is practically unknown to the great majority of the grain-handling public. Now note the change: Cranson, Huntley & Co., proprietors of the Monitor Works at Silver Creek, N. Y., after carefully investigating the workings and record in prolonged operation of the "Diamond" Corn Sheller, concluded that they could safely attach their name to it as manufacturers, and they bought the patents, patterns, etc., of the



THE "DIAMOND" CORN SHELLER.

former makers, and hereafter it will be built by them.

It is almost needless for us to say that in its construction none but the very best materials will be used. The workmanship will be of the same high class as that shown in their Cranson's Wheat Scourer and Polisher, and their Cranson's Roller Buckwheat Shucker machines, which have a most excellent reputation and a most extended sale. Being built now by this firm, in a shop fitted up with special machinery and tools for labor-saving, and with a number of improvements already added to it by its new makers, it is not difficult to see that the "Diamond" Corn Sheller will quickly come into wide favor and use. At present but two sizes will be put upon the market, the smaller having a capacity for shelling up to 60 bushels per hour, and the larger up to 300 bushels per hour. The cone and shell are both of very hard, tough iron. The teeth in each are so constructed and arranged as to insure the greatest strength and durability. The shell may be raised or lowered while the machine is in operation to adjust it to large or small ears, as may be desired, and the sieve and blower will perfectly clean the grains of silks and shives, etc., etc. While nothing essential to strength, durability and ease of operation will be lost sight of, MESSRS. CRANSON, HUNTLEY & Co. will be able to offer their "Diamond" Corn Sheller at a very low price, while in every way giving the fullest warrantee with every machine. They invite correspondence as above, and will cheerfully give every information.

A large force is now employed in the Agricultural Department at Washington putting up seed for congressmen, each statesman getting 7,000 packages of seed with which to make his calling and election sure with his farmer constituents. Seed dealers are kicking mightily against this free distribution, which comes in competition with their trade.



Issued on April 12, 1887.

GRAIN DRIER.—Lewis Borland and Thomas J. Parsons, San Francisco, Cal. (No model.) No. 361,126. Serial No. 208,037. Filed July 14, 1886.

Issued on April 19, 1887.

BAG HOLDER.—Albert H. Smith, Beaulieu, Dak. (No model.) No. 361,461. Serial No. 207,076. Filed July 3, 1886.

BELT TIGHTENER.—Charles G. Lott, Chicago, Ill., assignor to the Plamondon Mfg. Co., same place. (No model.) No. 361,303. Serial No. 220,317. Filed Nov. 30, 1886.

PACKER FOR BRAN AND OTHER ARTICLES.—Samuel T. Lockwood, Chicago, Ill. Reissue No. 10,827. Serial No. 223,340. Filed Jan. 3, 1887. Original No. 325,254, dated Sept. 1, 1885.

CORN SHELLER.—Aurelius V. Pitts and Marcellus H. Pitts, Marseilles, Ill., assignors to the Pitts Mfg. Co., same place. (No model.) No. 361,644. Serial No. 215,196. Filed Oct. 24, 1885. Renewed Oct. 2, 1886.

GRAIN CLEANER.—James M. Hendershot, Atchison, Kan. (No model.) No. 361,413. Serial No. 208,592. Filed July 21, 1886.

GRAIN TALLY.—Thomas Bellaire and John Bousha, Belle River, Ontario, Canada. (No model.) No. 361,392. Serial No. 203,282. Filed May 26, 1886. Patented in Canada April 7, 1886. No. 23,773.

DISK FOR GRINDING MILLS.—Joseph S. Ash, Canal Winchester, Ohio, assignor of one-half to Chas. B. Cowan, same place. (No model.) No. 361,252. Serial No. 200,539. Filed April 29, 1886.

ELECTRIC SIGNAL FOR WEIGHING SCALES.—Edwin S. Enyart, Ottawa, Ill. (No model.) No. 361,275. Serial No. 212,451. Filed Sept. 2, 1886.

Issued on April 26, 1887.

METHOD OF MAKING SPIRAL CONVEYORS.—William W. Green, Chicago, Ill., assignor to the Spiral Conveyor Co., same place. (No model.) No. 361,998. Serial No. 209,918. Filed Aug. 3, 1886.

AUTOMATIC GRAIN METER.—Jacob C. King, York, Pa. (Model.) No. 361,878. Serial No. 212,549. Filed Sept. 2, 1886.

Issued on May 3, 1887.

BAG HOLDER.—Washington I. Jordan, East Braintree, Mass. (No model.) No. 362,092. Serial No. 213,394. Filed Sept. 13, 1886.

A BIG CONTRACT.

The Buffalo, N. Y., *Commercial Advertiser* of April 30 has the following: The Southern Oil Company is placing its contracts for machinery and supplies for the extensive new mills it is building in so many of the Southern States, and there are lively times about its headquarters at Charlotte, N. C.

On Wednesday of this week the contract for scales was awarded to our successful and enterprising friends of the Buffalo Scale Company. There was, as is usual under such circumstances, the sharpest kind of competition. This contract for scales is one of the largest, if not the largest, of its kind ever placed by a business house in America, and includes sixteen railroad track scales, each of 90,000 pounds capacity, together with many wagon, dormant, grain and platform scales. The scales are to be erected at Houston, Tex., New Orleans, La., Little Rock, Ark., Memphis, Tenn., Montgomery, Ala., Atlanta, Ga., Savannah, Ga., and Wilmington, N. C. The mills, it is expected, will be in operation in season to handle this year's crop of cotton seed. It is needless to add that the reputation of Buffalo manufacturers generally, will be enhanced and benefited by this signal triumph for "the Buffalo scales."

The exports of wheat and wheat flour from eight Atlantic ports from July 1, 1886, to April 17, 1887, have been equal to 98,500,327 bushels of wheat, and from the Pacific ports during the same period, 27,029,531 bushels, making the aggregate from both coasts 125,529,858 bushels.

THE GOVERNMENT CROP REPORT.

The report of the Department of Agriculture for May relates to the condition of winter grain, the progress of spring plowing, and proportion of the proposed cotton area already planted. It indicates a decline in the condition of wheat of two points since April 1, the general average for the whole country being 86, against 95 at the same date in 1886, 70 in 1885, and 89 in 1884. The changes in condition have not been uniform throughout the winter wheat region, some states showing an increase, the majority a slight decline, and a few a heavy falling off.

The states of the middle Atlantic coast, from Pennsylvania to North Carolina, show some improvement, seasonable weather having aided the plant in recovering more than was expected from the injury done by the trying season during February and March. In New York and New Jersey the amount of winter killing was not fully known April 1, and this, with cold, unfavorable weather during the month, has caused a serious reduction of condition. Drouth has reduced the average somewhat in the Eastern gulf states and has wrought very serious damage in Texas and Arkansas, lowering the condition during the month nineteen and ten points, respectively. Favorable temperature and seasonable rains have improved the prospect in Tennessee, West Virginia and Kentucky, the condition being considerably higher in these states than it has averaged in May for the last five years.

The most serious reduction of the month is in Ohio, where there is a falling off of eight points since April 1, due to the continuing evil effects of the alternate freezing and thawing in the last report and to the cold dry weather during the greater part of April, which gave the injured plant little chance for recuperation. A favorable season after April 1 might have, in a great measure, repaired the injury done up to that time, but the continued unfavorable conditions have wrought still further damage, and a small crop is now inevitable. Michigan and Indiana show a slight decline, while in Illinois and Missouri there is a gain of one point. Unfavorable weather in Kansas and California has caused a slight falling off, while in Oregon the prospect has advanced, it being the only state in which condition reaches 100.

The averages of condition by states are: New York 86, Pennsylvania 72, Maryland 90, Texas 60, Arkansas 93, Tennessee 96, West Virginia 89, Kentucky 95, Ohio 71, Michigan 90, Indiana 87, Illinois 93, Missouri 96, Kansas 81, California 89, Oregon 101.

Rye has suffered from the same conditions which have injuriously affected wheat, but on account of its harder nature the general average is considerably higher, standing at 90.8, against 92.0 April 1, and 95.7 at the same date in 1886.

The condition of barley is low, the average being 87.8, against 96.7 in May, 1886, and 82 in 1885.

The season has been more generally advanced in all parts of the country than usual, spring plowing being seriously behind only on the Atlantic coast south to Pennsylvania and on the Pacific slope. In these sections it has been delayed by cold and excessive moisture. Elsewhere the work is ahead of an average year, the season, especially during April, having been generally favorable, with the temperature above the normal and the rainfall at a minimum. The proportion already done May 1 is estimated at 80 per cent. of the whole, while the amount usually completed at that date is about 76 per cent.

The proportion of cotton already planted amounts to more than four-fifths the proposed area, and is slightly greater than at the same date in any of the preceding five years, but is a little less than the proportion returned by the correspondents as the average planting at that date. The proportions by states are: North Carolina 70, South Carolina 80, Georgia 84, Florida 96, Alabama 88, Mississippi 84, Louisiana 83, Texas 82, Arkansas 80, Tennessee 80.

There is some complaint of slow germination and a poor stand on account of drouth at the time of planting in some sections, but with favorable weather replanting is rapidly filling all gaps.

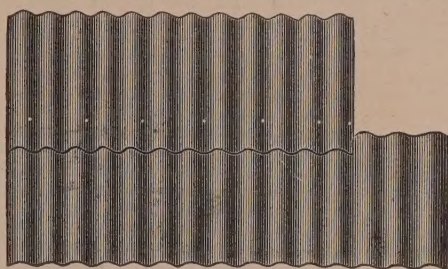
The Bee Line announces that the rate on grain from Indianapolis to Cleveland will be eight cents per 100 pounds, the same as the rate to Toledo and Detroit. Hitherto the rate to Cleveland has been two cents per 100 pounds above the rate to the other points named.

GARRY'S PATENT IRON ROOFING AND SIDING.

The use of iron for architectural purposes is rapidly increasing everywhere. While some architects are not so much in favor of iron columns and cross beams as formerly, there is but one opinion as to the desirability of sheathing frame buildings in iron; while iron roofing is both cheap, durable and effective, providing, of course, that it is one of the improved kinds of roofing that admit of being put on in a manner that leaves no chance for wind and water to do their work of disorganization.

Buildings roofed with iron are insured at lower rates than those covered with other material. This is not without good reason. Every reader can recall instances where buildings have been destroyed by fire through sparks falling on the roof. This has often been the case with elevators and flour mills located on the railroad. Then again, a building covered with iron is a protection against lightning. Prof. Mitchell is authority for the statement that it is impossible for a building to be struck by lightning when covered with iron.

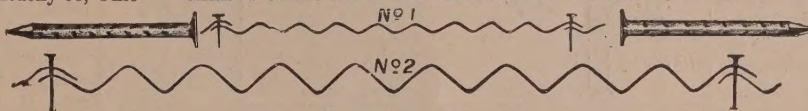
Iron roofing and siding have been deservedly popular with elevator men as offering one of the surest safeguards



ESPECIALLY ADAPTED FOR ELEVATORS.



GARRY'S CORRUGATED IRON ROOFING AND SIDING.



SECTIONAL VIEW OF CORRUGATIONS.

against outside fires, which cause a large proportion of destructive elevator fires. Our illustrations show some styles of the goods manufactured and sold by the Garry Iron Roofing Co., of Cleveland, Ohio, one of the best known firms engaged in the manufacture of iron goods for buildings. Our first illustration shows the corrugated iron siding, designed more particularly for grain elevators. The corrugations are made crosswise of the sheet so that when applied, they will run up and down the building, giving more elasticity to the iron and preventing its "buckling," as is apt to be the case with some forms of iron siding, when the building settles. In putting this siding upon the building, it is lapped on the sheet below about an inch, as shown in cut, and then nailed through the upper sheet about an inch above the lap, thus allowing for movement of the iron as the building settles. Our third illustration shows end views of small and medium corrugated sheets respectively.

Of course the roof is the most important part of an iron-sheathed building, as it has wind and water as well as fire to contend against. For the Garry Cap Roof a number of strong features are claimed. It is made of the best refined box-annealed iron. In regard to it the manufacturers say: "By our patent we avoid nailing or screwing the joints, which heretofore was a serious objection to iron roofs, for experience has proved that nail holes, though ever so small or covered up, will sooner or later leak, and nailing or screwing must in all cases prevent the necessary expansion or contraction.

"The anchors, or cleats, being of the same material as the roof, by our patent process of attaching the same, though perfectly secure, do not interfere with expansion or contraction. All the cross joints are locked and grooved, which allows expansion and contraction in an equal ratio, while perfectly water tight. Our upright

joints, capped and riveted, with the roof firmly flashed to side walls, become self-sustaining, and have in many instances preserved the neighboring buildings when roof-boards, rafters, etc., were burned away. We use no other than the "Metallic" and pure linseed oil to protect the iron from the atmosphere, which is from 75 to 100 per cent. more expensive, and proportionately as protective as any other article in the country.

"Our 'Cap' Roofing is shipped in rolls, which is much better than to ship in sheets with edges formed, as is the case with all other kinds of iron roofing but the Garry Cap. The expense of boxes is saved, and avoids the breaking of the locks, and flattening the edges down, and otherwise injuring the roofing, which saves time and expense in laying it. As to durability, we can show where iron roofing has been on for twenty or thirty years, and still is good. An occasional coat of our Metallic Paint preserves the roof at a less cost than it takes to repair any other kind of roofing. The Garry Patent Cap Roofing from No. 26 painted iron is mostly used, it being adapted to all classes of buildings and shapes of roofs. A square of our cap and crimped edge roofing, as shipped from the factory, will cover a square (100 square feet) on the building."

This firm manufactures the Adjustable Cap Roofing, curved iron for roofs and ceilings, corrugated iron ceiling, crimped roofing and siding, metallic tile or shingle, and in fact almost everything in the way of iron goods used in connection with buildings. They have issued a complete illustrated catalogue, which they will be pleased to send to all applicants. Address Garry Iron Roofing Co., 152 Merwin St., Cleveland, Ohio.

THE NORFOLK ELEVATOR.

Says the Norfolk Virginian: "The facilities which have been recently furnished at this port for the handling of grain in large quantities, by the construction of a large grain elevator by the Norfolk Terminal Company, working in connection with the Norfolk & Western Railroad, has attracted the attention of grain dealers and handlers; and although this elevator has not been completed and put in operation, two steamer cargoes of grain have been contracted for and are now in transit, to be loaded through said elevator for British ports. Additional cargoes have also been contracted for, and will be immediately trans-

ported and landed after the steamers referred to have sailed.

"The grain in both of them comes from a territory that has hitherto availed itself almost exclusively of foreign movement through Northern ports, and

it is believed that by the placing of this grain elevator in service, located as it is, directly upon the wharves of the Norfolk & Western Railroad, at its Norfolk terminal, that foreign tonnage seeking cargo will be additionally attracted to this port.

"The foreign freight that the Norfolk & Western Road has hitherto been able to bid for or secure has been confined to cotton, which has naturally moved only in large quantities at special periods of the year; and tobacco, and timber and lumber moving only as a specific therefor, has arisen at the ports of the continental and United Kingdom, but with the opportunities of having them in bulk that are now offered, a much broader basis is thereby created for the foreign freight transactions of the railway and the port, and hereafter, it is said that it will be the policy of the freight department of the Norfolk & Western Road to develop this traffic to the utmost degree that is possible, consistent with profitable transportation.

"Other steamers will be obtained to sail and go into commission to take cargo immediately after the steamers now engaged have finished their loading, and it is hoped that during the summer months sufficient traffic in grain, timber, tobacco and various commodities that make up foreign cargoes from the various territories reached by the road, will be obtained to justify the sailing of one or more steamers a month, previous to the opening of the cotton season for 1887-'88; and that in this way a reliable foreign steamer service, built up purely upon the revenue derived from the traffic itself, will be inaugurated and maintained."

The inspection of grain at Chicago by rail during April was 4,079 cars wheat, 6,497 cars corn, 2,504 cars oats, 64 cars rye and 576 cars barley. Total, 13,720 cars, against 8,910 cars for the same month last year.

A PNEUMATIC ELEVATOR.

BY S. E. WORRELL.

Some years ago the writer in placing the machinery in a new mill, owing to the surroundings, would have been obliged to use an elevator and two conveyors to deliver the bran to the storage bin. Principally to save cost of construction an exhaust fan and pipes were put in, more as an experiment than anything else, and the designer hardly expected it would work satisfactorily. But the blower and most of the pipe were idle and in the way; therefore it was set up as a venture. It should be mentioned that the fittings of an old mill were being utilized as much as possible.

To the surprise of every one the pneumatic device worked beautifully, and continued to do so as long as the establishment was operated. It is certainly an improvement over the method in common use, especially where the distance is long and the path obstructed.

The arrangement is so simple that the accompanying outline view, with a short explanation, will make it clear to all. Will first note that the upright discharge pipe has an inclination of about forty-five degrees, which cannot be shown in this style of a cut. The exhaust fan, requiring a little less than one-horse power to give it the proper speed of 1,950 revolutions per minute, has inlet and discharge openings $7\frac{1}{2}$ inches in diameter; the latter is upward, to save an elbow. All the air pipes are 8 inches in diameter and have a combined length of 65 feet. The turns are all made long and curved, so as to offer the least resistance to the air current. The slat window for the escape of the air from the bran bin is shown just under the roof and back of the ends of the discharge pipe. The pipe is closely riveted and two laps placed so as to present the least obstruction to the air; in horizontal positions, the longitudinal laps are placed on top of the pipe.

This device handled all the bran in a mill of 200 barrels per day of twenty hours, and during a run of three years never clogged up or gave the slightest trouble, nor cost one cent for repairs. It is evidently much more durable than the ordinary appliance for this purpose.

It is particularly well adapted for corn mills, where it by gravity separates the grits from the bran; for this purpose a gate is placed in the suction spout to regulate the strength of the air current, and a funnel below for catching the grits, as shown in the cut. By a careful estimate a 100-barrel mill would require a 6-inch pipe; 300-barrel, $9\frac{1}{2}$ -inch; 400-barrel, 11-inch, and 500-barrel, 12-inch pipe, each, of course, accompanied by a corresponding sized fan. It will be understood that the greater the length of the pipe or number of its turns, the greater must be the strength of the blast. Always make the fewest turns possible. If the slat window is properly located, there will be but little dust escape through it.

The writer claims that the pneumatic bran elevator and conveyor presents the following advantages over the belt elevator and spiral conveyor: Lower cost, saving of power, space, attention and repair, higher delivery, easiness in passing around obstacles, greater durability, removing the dust and increasing the ventilation.

The New York Central, Pennsylvania, Erie, Lackawanna, Baltimore & Ohio and the West Shore railroads have decided to reduce the rate on grain for export to 25 cents, as formerly.

The export movement of wheat and wheat flour from the United States, Atlantic and Pacific ports, is now nearly equal to 3,000,000 bushels weekly. Of the quantity of wheat and wheat flour "on passage for the United Kingdom" more than 76 per cent. is from the United States, indicating moderate supplies from other quarters of the globe. The weekly domestic consumption of wheat and wheat flour for food and manufactures is about 5,400,000 bushels, and this, with about 3,000,000 bushels per week for export, is diminishing our reserves about 8,400,000 per week. In ten weeks (to July 1 next) this rate of supplying home and foreign wants would call for 84,000,000 bushels. The exports of wheat and wheat flour from the United States, Atlantic and Pacific ports, from July 1, 1886, to April 24, 1887, have been equal to about 128,000,000 bushels of wheat, a quantity equal to all our surplus from the crop harvested in 1886. Present exports are being made from the reserves on hand July 1, 1886. Estimates of the size of the reserves carried over July 1, 1886, range from 75,000,000 to 85,000,000 bushels.

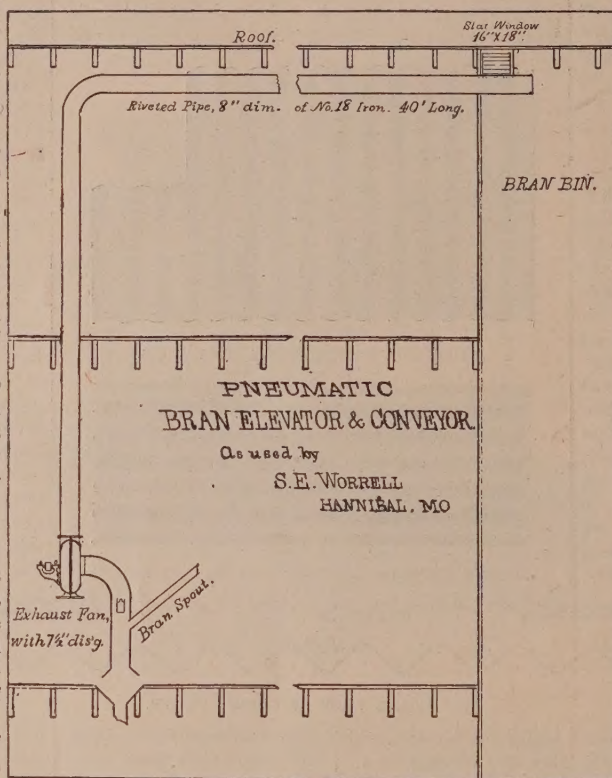
CORN.

Our corn is the *Zea Maise* of botany. It belongs to the grand division *Phenogamia* of flowering plants; and to its subdivision *Endogeous*, or plants which grow by the introduction of new wood into the interior of the old. In other words, it grows from the inside, instead of by the introduction of new wood between the bark and the old wood, as is the case with trees, shrubs and all plants with net-veined leaves. Such plants are called *Exogeous*, or outside growers.

The seed of corn is a solid mass, and when it germinates sends up but a single first leaf; hence it is called a *monocoty ledonous* plant.

It is also called a *monoecious* plant, because it has two sets of flowers—the staminate or male flower, and the pistillate or female flower—on the same stalk. The tassels are the male flowers, and the spike or cob, with its undeveloped grains and silks, the female flower.

Each little cavity in the cob, out of which a grain grows, contains the embryo grain, and has a long silk-like style leading from it to the end of the spike, and out



A PNEUMATIC ELEVATOR AND CONVEYOR.

through the glume or husk, on the end of which is a stigma. These hang in a cluster, and have much of the appearance of a tassel made of silk, and they are popularly called the corn silks.

The male flowers produce pollen, which falls on the stigma or ends of the silk, and a subtle fluid is carried from it through the tubular silks to the embryo grains, fertilizing them and causing them to quicken and grow. Should a silk happen to be detached from the ovule the embryo would not grow, or if it should grow at all it would be shriveled and imperfect. The same result would follow if the stigma should receive no pollen.

If all the tassels in a field of corn were removed before the silks appear, or before the anthers have opened to let the pollen free, there would be no corn. Likewise, if the silks were removed before the pollen had fallen on them the embryo would not be fertilized and there would be no corn.

Corn belongs to the *Order Gramineae* or grass family. This order of grasses includes 300 genera and nearly 4,000 species, and it is the most useful and most generally distributed order of plants. To it belong all our cereals and meadow and pasture grasses.

No other plant in the botanical list hybridizes so readily as maize, and because of this it is almost impossible to keep any variety pure. A single grain of red corn planted in a hill with other varieties will very likely impregnate every ear within a rod of it, so that more or less red grains will appear.

This peculiarity accounts for the hundred or more varieties which are cultivated. In these North Central states "corn is king." It overshadows all other cereals in productiveness, feeding qualities and money value.



The Robert Aitchison Perforated Metal Co., of No. 76 East Van Buren street, this city, report that they are furnishing perforated steel plates for the new Pension Building in Washington, D. C.

Edward P. Allis & Co., of Milwaukee, Wis., commenced April 5 to lay the foundation for a large building to be used by them as their general offices, shipping and drawing rooms. The new foundry which they are having built to replace the one recently burned will be one of the largest in the country, and is fast approaching completion.

In a letter to the Avery Elevator Bucket Co., of Cleveland, Ohio, Messrs. E. P. Allis & Co., of Milwaukee, Wis., say that after careful consideration they have decided to adopt the Avery Patent Seamless Steel Elevator Bucket for general use in contracts, sales, etc., as they consider it an excellent bucket in every respect, and their aim is to use the best of everything in their work.

The demand for Roller Chain, manufactured by the Roller Chain Belting Co., of Columbus, Ohio, is rapidly increasing. They are running full time, with a good outlook for the season.

A recent letter from the Garry Iron Roofing Company, of Cleveland, O., says: "We have had to increase our capacity, owing to the increase in business. The outlook is good for the coming season."

The busiest machine and iron works in the city is the one owned by Mr. George J. Fritz. The works are run ten hours each day. Among the orders recently filled may be mentioned the following: Shipped one patent automatic lubricator to flour mill at Fayette, Mo.; one heavy friction pulley to saw mill in Arkansas; one Fritz patent neck band and cape collar ironer to D. W. Seaver, Carthage, Mo.; one bottle corker to beer bottlers in Colorado; one steam pump to St. Elmo, Mo.; one Fritz patent neck band and cape collar ironer to Chicago; one No. 2 Fritz patent eccentric doctor with cold water pump to flour mill in Texas; one truck to fill bottles to bottlers in Lacrosse, Wis.; six Fritz patent neck band and cape collar ironers to Boston, Mass.; one $\frac{1}{2}$ -h. p. Fritz patent engine and detached boiler to John Q. Royce, of Smith Center Bulletin, Smith Center, Kan.; building for Meyerhoeffer & Bros.' Cooperage Works, St. Joseph, Mo.; one barrel turning lathe, 28-inch swing and six-foot bed. The works are also kept busy on miller's rolls. Beal's patent rolls giving eminent satisfaction to millers.—*St. Louis Industrial Gazette.*

CURIOUS GRAIN STORAGE.

We were here told of a system of storage for grain (says Ballou's "*Due North*") long established, but which was quite new to us, and which as a local expedient appears to possess considerable merit. It seems that there are what is called Corn Magazines organized in various districts, to which farmers may send a portion of their surplus produce, and whence also they may be supplied with loans of grain when required. The depositors receive at the rate of twelve and a half per cent. increase upon their deposit of grain for twelve months, and the borrowers replace the quantities advanced to them at the expiration of the same period, paying an interest of twenty-five per cent. in kind. The difference in the amount of interest on the grain received and that loaned pays the necessary expenses of storage and of sustaining the system. As the sole object is the mutual benefit of all concerned, no profit above actual expenses demanded or considered to be desirable. The necessity for these magazines is owing to the precarious character of the crops—a peculiarity of which is that there may be an abundance in one locality, and a partial or even total failure of the crop in another, though they may be separated by only a few miles from each other. These granaries are fostered by the government.

The planting of Egyptian corn is becoming quite an industry in some parts of California, and is being made very profitable by those who have undertaken it. On one ranch in Sutter county 1,000 acres are being put in.

THE WALTER SEPARATOR.

We give on this page an illustration of one of a new class of separators which offers itself as a candidate for the favor of the milling and grain-handling public. The Walter Separator, in its various forms or modifications as a milling, elevator or receiving separator, is the invention of that indefatigable inventor, Mr. J. T. Walter, of Easton, Pa., and he is confident that the grain-handling public will extend to this separator the same hearty welcome that has been accorded the other machines which bear his name.

In the machine under consideration the wheat is spouted to an automatic feeder which spreads the wheat evenly the entire width of the screens. Here a suction removes the chaff, etc. The wheat then passes to the scalper, which throws off the straws, strings, bits of wire, etc. Next it passes to the riddles, which remove the oats, etc. Next it passes to a cockle screen, which takes out the cockle and similar seeds.

The receiving trunk is the full width of the machine, a very desirable feature for taking out screenings. The Walter Balance Eccentric gives motion to the riddles. The chief claim made for the Walter Separator is that it requires only about one-half the power ordinarily required, while the height is much less than that of the majority of similar machines. These machines are built for the different purposes named above (with suitable modifications and in sizes to suit the requirements of establishments of various sizes). The manufacturers are THE WALTER PURIFYING CO., of Easton, Pa., who will be glad to correspond with all parties in need of efficient cleaning machinery.

TRADE IN THE SOUTHWEST.

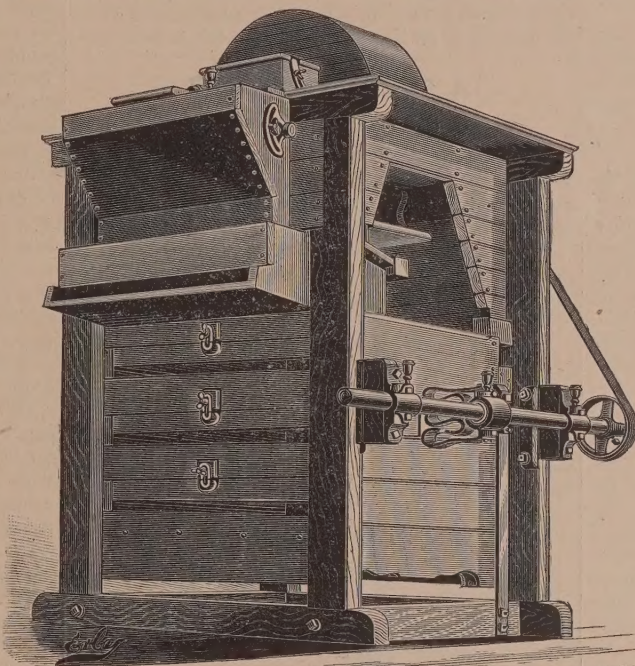
[Special correspondence AMERICAN ELEVATOR AND GRAIN TRADE.]

KANSAS CITY, Mo., May 11, 1887.

During the past month the Atchison, Topeka & Santa Fe Railroad has opened up its connection with its Texas system of railroads, and elevator men are looking on the new field for operations with longing eyes. Nothing to any extent has been done as yet in this new section, but there is every indication that before the year is over extensive arrangements will be made for elevator plants all along the new line. The railroad traverses the garden spot of the world so far as the winter wheat regions are concerned; and not only this, but corn is to play a not unimportant part in filling the elevators soon to be built. The only drawback at the present writing is the failure of the national government to open up the new country to actual settlers. It is thought that now the railroads have gone into the land that they will use their utmost endeavors to bring a change about in this respect. There is no doubt but that it is a blot on the escutcheon of a civilized, advancing country that this has not been done ere this. Congress has moved most slowly in regard to this for years. Some so-called philanthropic parties have been clamoring for the rights of the Indians. These rights now seem to be merely to keep to themselves a lot of land that is the most fertile in the land, and debar the white man from putting his plow on it and making it to bring forth what the Almighty originally intended it should—the products that are essential to the advancement of any land. The reports that experts have sent out from the territory of Oklahoma are of the very best in every way. Estimates have been made with the basis of lands not nearly so fertile and rich that on an average of thirty and forty bushels of wheat can be produced to the acre, and about twice as much corn. What sense or justice can there then be to open up this land to the hands of civilization? Let the Indians have what they need for their actual necessities, but do not make an allowance of 1,000 acres to the man—more than the government will allow any of her best citizens. True it is that this was originally ceded to the red man, and it was a mistake when it was done. This is generally recognized, and why should it not be remedied at the earliest possible moment?

But the grain men do not propose to suffer on this account. Those here are sending their emissaries all along the lines in Texas, especially the northern sections of the western portions, and are doing their utmost to turn the tide of shipments in this direction. The farmers in those

sections are promised better prices for their wheat than heretofore, for the simple reason that it will cost much less to bring it to market over the new route as compared to the older ones. The chief trouble encountered so far is the absence of good elevators in that country. The people are ten years behind the rest of the country in this particular. It is strange that this should be the case, as the bulk of them are made up of energetic Eastern men who have gone there with the expectation of bettering themselves. However, there is an excuse from the fact that there has been no available way of getting to the market with the grain. The people have been turning their attention more to the raising of cattle than of wheat on this account. It remains for the commission men at leading central points to convince these men that there is more certainty in a crop of wheat than one of cattle. Owing to the present status of the cattle market, it will not take much talk to convince them of the truth of this. They will willingly turn from their old methods to something that will pay them better. The only thing that will cause them to look the ground over longer is the fact that droughts have been the rule throughout the Lone Star state for two years back. But these droughts have affected the cattle interests to even a greater extent than they



THE WALTER SEPARATOR.

have the wheat interests. It is out of the question to expect much corn to be shipped from these far Southern sections North. It will not pay nearly as much as to ship the same further South, where it goes into immediate consumption. Yet there are none who will question that there is no better territory for the elevator men of the land to supply a demand that is before them for the best elevator plants of the country. Until this supply is made there is no use in expecting any great supplies to flow continuously to the North.

At present the rates from Texas North are not much better than from the same state to the Northeast. St. Louis is striving her utmost to make a turn her way, or rather to keep the tide in the channel it has been running for years past. On the other hand, Kansas City and Chicago are beginning to pull in the opposite direction. Shipments to Kansas City mean shipments to Chicago. The interests of the latter two cities appear to be identical so far as Texas trade is concerned. This is the reason that there is now a good deal of co-operation between the commission and elevator men of the two cities with the intention of securing what they think nature has offered them.

On the new road to Texas the distances from leading cities to Kansas City and St. Louis are negatively as follows:

	Miles from St. Louis.	Miles from Kansas City.	Difference.
Austin.....	850	706	144
Dallas.....	711	511	200
Dennison.....	621	412	209
Denton.....	749	473	276
Fort Worth.....	743	508	235
Galveston.....	870	806	64
Gainesville.....	678	452	226
Greenville.....	671	464	207
Houston.....	820	756	64

	Miles from St. Louis.	Miles from Kansas City.	Difference.
Huntsville.....	761	697	64
Laredo.....	1,084	940	144
Longview.....	588	561	26
McKinney.....	703	496	207
Minneola.....	634	515	119
Palestine.....	669	604	64
San Antonio.....	930	786	144
Sherman.....	645	455	190
Taylor.....	814	670	144
Troupe.....	624	560	64
Waco.....	831	596	235

It will be seen from the above that the distance from each of the above points to Kansas City is in its favor as compared to St. Louis. This means that Chicago has the advantage over its old-time competitor by just the same number of miles.

There are at present the following amounts of the different kinds of cereals in store at the elevators here: Wheat, 168,579 bushels; corn, 129,414; and oats but 187 bushels. During the past month there have been 28,825 bushels of wheat received, 59,232 bushels of corn, and no oats. This is the first month for many a day that there have been no receipts of oats to note. So far this year there have been received 436,560 bushels of wheat, 666,160 bushels of corn, 44,746 bushels of oats, and 5,635

bushels of rye. Thus it is readily seen that the grain business has amounted to but little so far this year. It is thought that as soon as the new crop comes to hand there will be a change for the better, so that many of the elevators that have hardly paid expenses may come out a little ahead as the result of the year's business.

Values of No. 2 red wheat have advanced 1½ cents to 71½ cents, while No. 2 soft has gone up just 1 cent to 78 cents, with very few sales to note. No. 2 corn has advanced from 31½ cents to 33½ cents, an increase of 2 cents; and white shows exactly the same increase, beginning the month at 33 cents and closing at 35 cents. Not a sale of No. 4 corn was made during the month under review.

The latest and most reliable reports from the state of Kansas denote that the crop of wheat is showing up very fairly in proportion to the acreage, which is decidedly lighter than for several previous years. Here and there the chinch bugs are heard of as making havoc; particularly is this the case with the counties in the more northern sections. On the whole, however, the outlook is better than was the case a month ago. The condition of corn is fair.

Heads of wheat six inches long, raised in Wichita county, were exhibited on the streets of Wichita Falls, Tex., May 6.

Advance sheets of the May crop report of the State Board of Agriculture show the condition of winter wheat in Illinois May 1 to have been 92 per cent. of an average. This is an advance of 2 per cent. over the previous month. It is still 6 per cent. less than the average condition of May 1, 1886. In the northern and southern counties the average condition is 88 per cent. and in the central counties 101.

The manufacturers of machinery, as well as other business men, have some queer propositions. E. P. Allis & Co. were informed by a Georgia gentleman that if they would effect some good sales for the right to manufacture his "vermifuge" he would take it in machinery. He says of his "patent improvement on vermifuge" that "it is one of the safest and shurest vermafuges in the world, and good far any person suffering with backache, eny other distresses of the human body." He ended by requesting them to send him their "descript catilog."—*Lumberman*.

Although shipments of wheat from the port of Montreal from Jan. 1 to April 18 show a marked increase over the corresponding period last year, the outlook for export trade is by no means reassuring. The following statement shows the export of wheat, corn, peas and oats during the periods mentioned:

	—Total Shipments— 1887.	1886.
Wheat, bushels.....	1,067,000	467,411
Corn, bushels.....	6,192	537,781
Peas, bushels.....	303,633	254,365
Oats, bushels.....	58,174	39,290
Total.....	1,434,999	1,198,847

It will be observed that while there was a large increase in the shipments of wheat, the export of corn has fallen to a nominal figure.

THE COST OF OPERATING BUFFALO ELEVATORS.

In March, 1884, Mr. Charles Sparks, foreman of the best elevator in Buffalo, gave the following figures of labor and fuel to run an elevator capable of transferring 100,000 bushels grain per day:

One foreman.....	\$ 3.50
One bookkeeper.....	2.50
Two weighmen, \$2.50 each.....	5.00
One leg tender.....	2.00
One spout tender.....	2.00
Two sweepers, \$1.50 each.....	3.00
One engineer.....	3.00
One fireman.....	1.50
One night watchman.....	2.00
One oiler.....	1.50
Six tons soft coal, \$2.75 per ton.....	16.50
Oil and waste.....	1.50

Total for labor and fuel.....\$44.00
Add for taxes, insurance and sundry expenses per day. 18.50

Total expenses per day.....\$62.50

These liberally paid men, and a liberal allowance for all other expenses, only equal a sixteenth of one cent a bushel. And we get this \$62.50 four times in a quarter of a cent a bushel, leaving a clean profit of \$187.50 per day.

These indisputable figures show why numerous men have testified that a quarter of a cent a bushel—\$2.50 per 1,000—would leave an elevator a good margin for a direct transfer of grain. These figures show why they only charge \$2.20 per 1,000 in Philadelphia. Even at that rate they would clear \$157 per day.

Mr. Parks' figures explain why twenty senators in the session of 1882 voted to compel the elevator companies to do the elevating and trimming for half a cent a bushel, which only left the elevator a $\frac{1}{4}$ after paying scoopers. Those figures also corroborate Mr. John Norton's statement that a quarter of one cent a bushel would leave an elevator a good margin. Also that of Mr. Willis Nelson, of Fulton, this state, who says an eighth of a cent will pay well for transferring grain. Both of these gentlemen own elevators and know whereof they speak.

From this memorable exhibit we can understand why Mr. Robert Garrett said in his speech, at the great Staten Island banquet, that port charges on grain in New York were three times those of Baltimore. While \$2.20 per 1,000 pays the entire port charges in Philadelphia, they exact \$18 per 1,000 in New York, besides collecting a damaging charge for wharfage. While seventy-five cents per 1,000 pays for trimming grain in ships at Chicago, \$8 is exacted from ships in New York harbor for the same service, which is over ten times Chicago's charges. And the wharfs are free in the latter port.

This New York ring charge our canal boats \$5 per 1,000 to discharge them, when \$2 pays the bill anywhere else in America.

Mr. Horton, a prominent elevator owner of Buffalo, testified that a $\frac{1}{4}$ of a cent a bushel would pay an elevator well for transferring grain.

Mr. Bennett, another very prominent elevator owner of Buffalo, says that a $\frac{1}{4}$ is all he wants for transferring grain, but he is actually forced by the railroad companies to charge the grain alone $\frac{1}{4}$ of one cent a bushel.

An assembly legislative committee, after investigating the matter thoroughly, reported that the elevator "combines" were barnacles upon canal commerce and were organized to tax grain to its utmost extent.

Ex-Canal Auditor John A. Place, of Oswego, in his official report, called the elevator monopolies hydra-headed monsters preying upon canal commerce.

Rogers & Brown, ship brokers at Buffalo, and others who know by experience, say that charges for discharging ships at our rival Canadian ports are about \$4 per 1,000 less than they are in Buffalo.

We are told that \$1.50 to \$2 per 1,000 pays the bill at Sarnia, Collingwood, Midland and Kingston, while the charge to vessels in Buffalo is \$5.75 per 1,000.

Notwithstanding \$62.50 pays the expense of running these elevators, they are bound to get it back seventeen times per day anyway, and nineteen times if the grain is blown.

Now, let us take a business view of this question. *First.* It is a foregone conclusion that the canals are to be improved and that the proposed improvements will cost the state about \$5,000,000. *Second.* Our most practical canal men say that this improvement will reduce the cost of transportation by canal $1\frac{1}{2}$ cents per bushel on grain. Taking the average rate of late years at 4 cents per bushel means that when the locks are lengthened and two feet more water is secured, grain will be

carried for $2\frac{1}{2}$ cents per bushel. And there is not the slightest doubt but this \$5,000,000 will prove to be a paying investment for the people if we arrange to transfer grain as cheaply as other people do. Now let us see what can be saved at Buffalo:

Present profit from grain per 1,000.....	\$8.75
From steam shovel per 1,000.....	2.00

Total profit per 1,000.....	\$10.75
State rate, $\frac{1}{4}$ cent per bushel.....	2.50

Tolls reduced per 1,000 bushels.....\$8.25

This means to reduce the tolls at only one end of the canal on only one elevator \$8.25 per day, and yet leave an elevator a profit of \$187.50 and not interfere with the scoopers' prices either. Now for New York:

Present profit from boat, grain and ship per 1,000.....	\$14.50
State rate $\frac{1}{2}$ cents per bushel.....	3.75

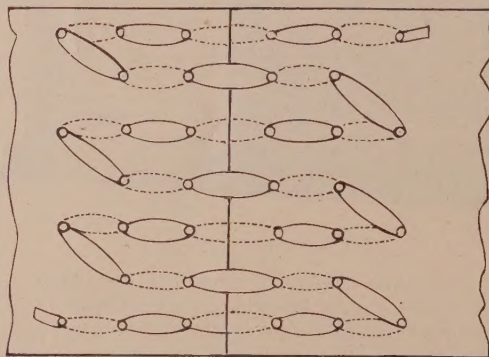
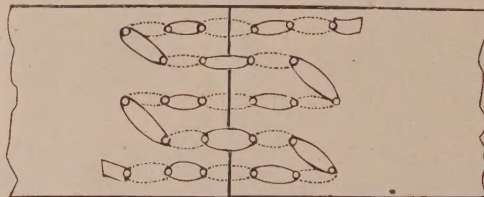
Tolls reduced per 1,000 bushels.....\$10.75

Here we reduce the tolls over a cent a bushel. Now, by the state investing \$250,000 in six floating elevators, working two in Buffalo at a $\frac{1}{4}$, four in New York at $\frac{1}{2}$ cents per bushel—by these reduced rates the aggregate amount of tolls abolished at both ends of the canal is even \$19 per 1,000, one and nine-tenths cents per bushel, equal to \$836,000 on the 44,000,000 bushels handled by the boatmen in the season of 1886.—*Canal Advocate.*

A GOOD BELT LACE.

BY TIGHT LACER.

The accompanying sketch illustrates a mode of joining belts by which, if carefully united, the splice made need not be considered the weakest point in the belt. Its extraordinary strength is due largely to the fact that so little



resistance is offered by the lace in passing over the pulley, especially in instances where the diameter of one pulley is very small. While there is considerable lateral strain on the lace, the alternate directions in which it passes through the holes, and the tendency of the same to assume a straight line, makes an indentation in the belt sufficient to protect the lace from contact with the pulley, thus avoiding the wear of the lace occasioned by the old way. Another advantage to be gained is *distributing, equalizing and increasing* the gripping points, all tending to strengthen the parts, thereby relieving to the greatest extent possible the holes and lace. This manner of lacing is especially adapted to roller belts, where both sides of the belt come in contact with pulleys, necessitating the avoidance of knots.

The precautions to be observed are: Use the best lace, rather thick preferred; the holes should be merely large enough to draw the lace with considerable exertion; slightly notch the lace one inch from the end, to prevent its pulling through; when the job is complete the other end must appear the same. Hammer the work a little, and the splice is finished.

The grain exports so far this year show a marked increase over those of last year. During last week six steamships sailed for the United Kingdom and Continental ports with 440,166 bushels of grain, making the total number of bushels exported since Jan. 1, 1,708,117, an increase of 600,000 bushels over that of the same time last year.

TRADE AT PHILADELPHIA.

PHILADELPHIA, May 9, 1887.

Trade has been rather quiet. With but few exceptions the merchandise markets here and in other Eastern centers have ruled quiet, with the volume of business in progress of moderate proportions, but speculation shows increased activity, values have developed an upward tendency, and the controlling influences are of a more promising character. Although the harmful effects of the Inter-State Commerce Law have become more and more apparent in different sections of the country, and with respect to various departments of trade and industry, the rulings of the commissioners regarding the operation of the objectionable fourth clause have afforded a temporary relief, and there is much less complaint of its restricting influence upon business, and from many in terior points reports are received of increased activity and expanding trade. Perhaps the iron industry is suffering most from the difficulties that this new law has created, for it has no doubt checked railroad construction and caused the completion of fresh enterprises that were in contemplation to be postponed, while the increased production of all kinds of both crude and manufactured iron that was stimulated by the increased demand developed at the commencement of the year, has resulted in the offering of supplies in excess of the requirements of consumption. The Third street barometer, the stock market, has indicated a more hopeful feeling, but perhaps the best evidence of the confidence with which capitalists view the outlook is to be found in the increasing demand that has existed for all good railroad bonds, and upward tendency of their values. What are esteemed the gilt-edge issues have found buyers, even at the relatively high prices that now prevail; but for others who do not enjoy such high credit there has been a steady appreciation in value that is significant. The healthy condition of monetary affairs is likewise a good guide to the hopeful feeling that exists, for money is in good supply at comparatively easy rates; collections are generally reported good, and capital is readily seeking opportunities for profitable investment.

The wheat market during the past week has ruled very strong, under light offerings and an active demand for export. At the close on Saturday prices were $2\frac{1}{2}$ to $2\frac{3}{4}$ cents per bushel higher than at the time of our last monthly review. There has been fair speculative business and a good demand for milling. Supplies of high grade wheat have been closely sold up. The visible supply decreased 1,361,203 bushels.

The corn market has ruled firm, but without important changes. Speculation has been tame, but there has been a fair export inquiry and a good local trade demand for spot lots. Offerings are light. Sales of 65,000 bushels in lots for local trade, including No. 3 at $49\frac{1}{2}$ to 50 cents; steamer at 50 to $50\frac{1}{2}$ cents. Saturday the option market ruled steady, but speculation was tame and export demand continued moderate. Spot lots for local trade were quiet but steady, with moderate offerings.

There has been a good local trade demand for oats, and prices have ruled firm and a shade higher.

Whatever be the merits or demerits of the Inter-State Commerce Act as a piece of general legislation, there is no question that it may be made to insure to the great material benefit of Pennsylvania as a state, and of Philadelphia as a city. No other state, with the single exception of New York, includes within its limits a lake port, a tidewater port, and a direct railroad connection between the two. New York is nothing like so rich a state in agricultural resources. The Western markets thus placed within reach of Pennsylvania's manufacturers without the necessity of using any inter-state railroad route, are those of a series of important and rapidly-growing cities, such as Chicago, Cleveland, Toledo, Detroit, Milwaukee and Duluth, and a large number of lesser towns on both the American and Canadian shores of the great lakes. Pennsylvania manufacturers and wholesale merchants should make haste to increase their trade with these growing markets before another Congress meets to modify a law whose effect on the country at large is yet to be determined. The merchant or the community that gets a good footing in a growing market is likely to retain that footing with reasonable care, even after the circumstances under which it was obtainable are modified. Philadelphia's grain export trade, which has heretofore suffered much from the competition of New York and Baltimore, should make the season of 1887 memorable by utilizing these, perhaps, temporary conditions to recover its lost prestige. It is time for Philadelphia's Commercial Exchange and Board of Trade to take organized action to

secure the largely increased volume of export traffic that can, with wise management, be made to pass through Philadelphia. The transportation and terminal handling of this newly accessible business would give greatly increased opportunities of employment to labor, and redound to the increased prosperity of every branch of Pennsylvania and Philadelphia trade.

There has been a marvelous change in the business of Philadelphia within the period included in the experience of your correspondent. Our merchants generally had shut themselves up in their dark and quiet counting-rooms, like clams within their shells, and had allowed trade to drift away from them until not only wholesale buyers, but even retail shoppers, went to other cities for their goods. The influence of live papers, and especially the example of a few live merchants with modern ideas, have brought about a great awakening, and the development of trade within the past few years is something astonishing. If the progress of the past few years be maintained it will soon transform the whole business aspect of the city. The same broad gauge energy and enterprise that are illustrated by the new generation of merchants must be felt in every channel, and Philadelphia resumes her rightful place as a center of industry and trade, and a great modern metropolis. The day of the clams has gone by.

The exports of Philadelphia to Great Britain and Ireland constitute more than one-half of our total export trade. This great outlet from the United States to Great Britain is one of the mighty achievements of commercial freedom. Were it not that Great Britain lets American products into its ports free of duty, the British would not be able to distribute and consume so vast a quantity of the products of the United States. If the British had a protective tariff like our own, its evil effects upon the development of the world's commerce would make Dame Columbia dizzy. Six large English steamships and two barks have been chartered to load grain at this port on foreign account this week. The exports of wheat and corn thus far during the present year almost equal the entire shipments for 1886. For the past week alone the shipments have been 406,611 bushels. The shipments of corn since Jan. 1 have been 1,949,713 bushels, while at the same period of 1886 the shipments were but 879,739 bushels. Up to last Saturday 3,000,000 bushels of wheat had been carried away on foreign account, while in the corresponding period of 1886 the shipments were but 604,074 bushels. The Commercial Exchange has appointed a committee of five from the grain trade to confer with the managers of the local elevators with regard to securing uniform rates of storage, not to exceed $\frac{1}{2}$ cent for the first period of ten days and $\frac{1}{4}$ cent per bushel for each succeeding period of ten days. The committee consists of E. L. Rogers (chairman), Chas. H. Cummings, S. C. Woolman, L. K. Passmore and E. A. Hancock.

The Baltimore & Ohio Railroad Company last Monday opened the new iron freight house at Piers Nos. 11 $\frac{1}{2}$ and 12 North Delaware avenue.

The flour and grain merchants of Philadelphia have signed a paper agreeing to close their places of business during the summer at 3 o'clock P. M. on Saturday and 5:30 on other days.

There is considerable grain tonnage coming to this port, but offerings of steamers on the spot have continued light, and, with a steady inquiry, rates have advanced to 2s. 3d. for prompt loading for Cork orders or direct continent. Liverpool berth room has been engaged at 2d., and Antwerp is held at 3d. No room offering in Glasgow regular liners.

J. C. D.

The average price of wheat in the United Kingdom for last year is given as equal to 92 $\frac{3}{4}$ cents per bushel, and it is stated to be the lowest average of the last 131 years.

The Talmage, Neb., *Tribune* says: "On and after July 1, grain dealers, persons, partnerships, companies, corporations or associations will find it very dangerous to pool or fix the price on grain or stock of any kind. A law was passed by our legislature that makes it unlawful to do so. Grain and stock dealers are prohibited from entering into any agreement, contract or consolidation for pooling the prices of produce and compelling dealers to divide between them the net proceeds of their earnings, or fixing the price which any dealer, company or association shall pay. Each day's continuance of any such agreement shall be deemed a separate offense. Penalty for violating this law: Fine in any sum not exceeding \$1,000, or imprisonment in the county jail any time not exceeding six months, or both, at the discretion of the court."



[We invite correspondence from every one in any way interested in the grain trade, on all topics connected therewith. We wish to see a general exchange of opinion on all subjects which pertain to the interests of the trade at large, or any branch of it.]

DISSOLUTION OF PARTNERSHIP.

Editor American Elevator and Grain Trade:—The elevator and grain firm of Charters & Miller, dealers in grain along the line of the St. J. & G. I. Railroad, with general office at Severance, Kan., has dissolved. I will continue the business.

Yours truly,
Severance, Kan.

CHAS. E. MILLER.

LIKES THE SAMPLE.

Editor American Elevator and Grain Trade:—Please find inclosed \$1 for one year's subscription to the AMERICAN ELEVATOR AND GRAIN TRADE. I think from the sample copy sent me it is a very valuable paper, and every grain dealer should have it.

Very resp'y yours,
Lebanon, Ill.

J. C. HITE.

DISSOLVED PARTNERSHIP.

Editor American Elevator and Grain Trade:—The firm of J. M. Phillips & Co., at West Memphis, Ark., composed of Capt. J. M. Phillips, of Chicago, and Mr. John K. Speed, of Memphis, has dissolved. They have sold their wharffboat to the Memphis & Cincinnati Packet Co., who will use it for their extensive Southern business at the Memphis wharf. Capt. C. B. Russell, G. F. & T. agent, took charge of the boat on the 9th inst.

Resp'y yours,

GARVEY.

SETTLEMENT OF AN IMPORTANT PATENT SUIT.

Editor American Elevator and Grain Trade:—We have to notify you that the United States Court has decided that the drive chain heretofore made by us is an infringement of the patented rights of the Ewart Mfg. Co., and enjoined us from the further manufacture and sale. We have settled with them for all claims for damages and are pleased to inform you that no further suits will be brought by them against our customers.

The Link-Belt Machinery Co., of Chicago, will hereafter furnish repairs for our chains in use, and all correspondence on the subject should be addressed to them.

Very resp'y yours,

MOLINE MALLEABLE IRON CO.

Moline, Ill, April 19, 1887.

RESPONSIBILITY.

Editor American Elevator and Grain Trade:—Few men there are whose shoulders are not broad enough to hold up almost any amount of responsibility, if only the pecuniary consideration is proportionate thereto.

Let it be understood that the more shekels he receives the more responsibility must he shoulder, and the average man will never fail to reach the limit to the shekels long before there is any perceptible spinal curvature resulting from an overload of responsibility. Human nature—very human. Even a railroad company's spinal column is capable of a moderate load of responsibility, if the shipper is willing to pay for the wear and tear thereof. Comes high, to be sure, but there are shippers who must have it.

On the other hand, a fixed supply of lucre, though the remuneration be fair and just, gradually weakens the spine to such a degree that the burden bearer becomes as eager to unload his responsibility as he formerly was to load up.

Thus it cometh to pass that the sturdy freight agent stands behind the declaration that "his company ain't responsible for nuthin," like unto the warrior who standeth firm behind the ramparts; and the shorn shipper silently succumbs to the inevitable.

Now while a railroad company's bill of lading for almost any kind of goods is profusely plastered with notations, as "Owners risk fire and wet," "Owners risk breakage"—owners risk this, that and the other, the climax of this nonsense is reserved for shipments of wheat. What with the "Owner's risk" notation, and the "This company not responsible," etc., notation, the poor shipper can only

dump his grain into the car and put his trust in Providence. But after all there is a suspicion in my mind that a good deal of this trouble is the shipper's own fault. There is too much careless weighing and estimating. The railroads are systematic in taking care of the shipment after it is out of the shipper's hands, while the shipper is too often without any reasonable evidence of a certain quantity having been put into the car.

To illustrate. Traveling last summer on a road not a thousand miles from Chicago, I happened to be in the company of a railroad man who was connected with the "claim department" of this same road. At a small station we noticed what we estimated to be about twenty-five bushels of wheat lying along the track for a distance of perhaps a quarter of a mile. It was raining and the wheat was soaked. I remarked that there would be a good fat claim made for that loss. "No doubt of it," answered my friend, and when the train drew up at the station he collected all the facts he could in regard to the accident and loss, as he knew the matter would come up in his department. A few months since I saw him again and inquired about the claim. "Never heard anything of it afterward. Our men collected all the wet wheat they could and turned it into the company—about eighteen bushels—enough to spoil the whole car-load if it had been put back into the car. You see after weighing the wet wheat and making a liberal estimate of that which could not be collected, our folks were pretty well prepared to settle on a correct basis. But the claim never came in."

There are no doubt many cases just like this one, and they all stand as evidence to the railroad companies that there is gross carelessness on the part of shippers in handling their grain. Hence the railroads are not responsible.

Now it seems to me that the speediest way to relegate to the shades the absurd notion that a shipper must deliver his grain into the hands of a railroad company without any stipulation as to quantity, is for shippers to weigh their grain carefully—the second time if need be—and then if he is short, make his claim and press it, and after one or two cases the railroad company will provide means for knowing how much grain they receive, for the same reason that they are careful to collect facts in cases of loss by accident, *i. e.*, because it will be to their interest to do so.

Yours truly;
Toledo, Ohio.

RESPONSIBILITY.

The May wheat deal, which was expected to create something of an excitement on 'Change, passed off quietly Monday, May 2, the clique taking most of the cash wheat. The deal is supposed to have gone over into June.

The United States, United Kingdom, France, Russia-British India, Australasia and Austro-Hungary in 1884 produced 1,645,297,403 bushels of wheat; in 1885, 1,953,055,857 bushels of wheat, and 1886, 1,453,647,323 bushels of wheat, or 192,241,546 bushels less in 1885 than in 1884, and 191,650,080 bushels less in 1886 than in 1884. In the two years, 1885 and 1886, therefore, there was a diminished production of 382,891,626 bushels.

A recent number of the San Francisco, Cal., *Grocer and Country Merchant* states that actual values in Europe do not justify the payment of over \$1.65 per cental there for No. 1 wheat; still shippers have to pay about \$1.72 $\frac{1}{2}$ or go without. Naturally they do the latter. We are now within sixty days of harvest, and have fully 6,000,000 bushels here in the interior warehouses, and to come from Oregon. Some place the figures higher. With this quantity of wheat in California at the end of April, and virtually tied up so that neither shippers nor millers can operate it, is not a desirable state of affairs.

Oats require a larger sum of heat to mature than barley, and the average period of maturation may vary from 134 days, as in England, to 100 around Paris, and only 88 at Koenigsberg in Prussia. Oats should be sown in six-inch rows. Barley possesses the faculty to germinate at a soil-temperature of 97 degrees, while oats can only sustain that of 85. This explains why in warm latitudes, barley replaces oats in the alimentation of stock. Barley will germinate after absorbing 55 per cent. of its weight of water. Around Paris it ripens in ninety-six days, while in England it takes 127. Maize exacts only 44 to 50 per cent. of water to germinate; from its appearance above ground until coming into flower, forty-five to 105 days are required; fifteen to eighteen more for fecundation, and forty to eighty days to mature. In France the total mean time from the sowing of maize to its reaping, 104 to 180 days, and even more, are necessary.

THE CONSTRUCTION AND EQUIPMENT OF ELEVATORS.

BY R. JAMES ABERNATHEY, IN "MODERN MILLER."

I have heretofore treated of small elevators for local handling only. A great many heavy grain dealers, who buy at a number of points on the same railroad, need, at some convenient point, a central elevator, where the product of all the other points can be made ready for the market. Such houses should be so arranged as to receive grain of all kinds—but from track and wagons at the same time.

Such an elevator should be constructed on the local or wagon side substantially as heretofore directed. The basement should be as deep as circumstances will permit, and if possible a special pit for boot of elevator should be sunk at least six feet below basement floor, or a pit for each stand of elevators, when there are more than one stand. If there is a liability of being troubled with water, then pits should be iron lined; that is, a water-tight iron tank should be made to drop down into the pit after it has been sunk in the ground. That will keep the water out of the pit and away from the elevator boot. The sheller should also sit down in the pit as low as may be permitted to discharge properly into the boot.

The pit and sheller made as low as possible, then the driveway should be made as high as is practicable, so that a reasonable dump hopper can be placed under it that will empty itself into the sheller, which will have to be much further away from the dump than in the exclusively local elevator.

In flat sections, when water is near the surface, and where neither can get low down with basement, nor high up with driveway, then the dump-hopper and sheller must be connected by draw-belt, which will be no great drawback in a house such as we are describing, because the sheller is always large enough to shell corn much faster than it can be dumped.

A track handling house should never be made very wide, unless of large dimensions that will allow tracks to run through the building. Twenty-four feet is wide enough for an ordinary country track for transfer houses.

The light must be determined by the amount of handling expected to be done. A building 24x60 makes a very convenient size, and one that a great deal of handling can be done in. In a corn section of country, where a great deal of corn has to be handled, there should be two corn shellers, one at each end of the house, and about midway of the building, between the track and local side, if the depth of the basement and height of the driveway can be secured as first described. If not, and a drag-belt be used from dump to sheller, then the sheller must be placed close to the track side of building, and so arranged by chute connections between sheller and car, when in position, that the corn can be rolled or shoveled from car directly into sheller. If properly arranged a five-hundred-bushel carload of corn can be unloaded and shelled in from 20 to 30 minutes. If the depth desired can be secured and shellers put in center of building, the connection between shellers and car will be substantially the same, except that the chute will have to be longer.

The cupola of a transfer house should be well up in the air—high enough to allow the corn cleaner to discharge direct into the carload hopper scales, and that in turn into a reasonable number of bins. The caps for such an outfit should be 18x7, fastened to a four-ply twenty-pound belt of the best quality. For handling small loose grain a good-sized hopper can be constructed leading from car to boot of elevator, which, of course, must be separate and apart from the corn shelling apparatus, say in the center of the building lengthwise.

The small grain separator should also be in the cupola above the scale hopper into which it will discharge it in turn into as many bins as can be reached by it in the same manner as the corn cleaner and scales.

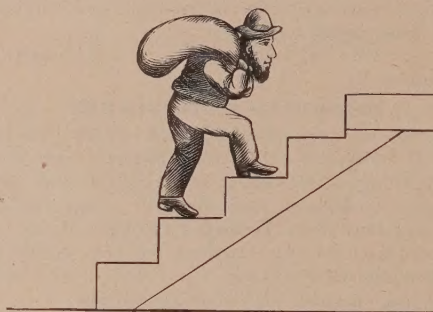
A great many elevator operators object to having the small grain separated in the top of the building on account of the care they require in keeping the sieves clean. That objection is a very good one in ordinary occasions, but when a number of hopper scales are used in the top of the building, and much grain is being handled, it requires a man up there the greater part of the time who can just as well attend to keeping the separator sieve clean. When it is possible, a retaining hopper should be placed between the discharge of the elevator and the separator, as by that means the separator can be fed far more uniformly than by discharging directly from elevator to

it. A separator is always under better control when fed from a hopper or bin instead of an elevator. There should be two tracks to an elevator of the kind under consideration, one for loading in and another loading out. The loading out track must be on the outside, and both covered with common shed roof running from building outward. By that arrangement the house can be loaded and unloaded at the same time without one operation interfering with the other. Each one of the tracks should be provided with a track scale, the inside track to be used for weighing grain when received, so as to be able to properly check off the shipper, no matter whether an outsider or an employee, at a distant station. Sometimes employees are careless and dishonest and the track-receiving scale is very convenient for holding them level.

To epitomize, the inside track scales keep a record of all grain received in the dirt; the hopper scales keep a record of all cleaned grain in the house; and the inside track scales keep a record of all grain shipped away.

The cars on the outside track can be loaded through a spout running out from upper part of building and over the car on the inside track.

A PAIR OF OLD FASHIONED ELEVATOR LEGS.



STORAGE RATES IN VARIOUS CITIES.

A subscriber in Montreal writes to ask us the storage rates on grain in Chicago, St. Louis, Detroit, Duluth, Buffalo, Philadelphia, Milwaukee, Baltimore, Toledo, New York and Minneapolis. We are not informed as to the rates on grain in Philadelphia, but suppose they are the same as Baltimore rates. For the other cities they are as follows:

CHICAGO.—On all grain received in bulk and inspected in good condition, three-quarters (¾) of one cent per bushel for the first ten days or part of same, and one-half (½) of one cent per bushel for each additional ten days or part of same, so long as it remains in good condition.

On and after the 15th day of November upon grain in good condition storage is at the foregoing rates until four (4) cents per bushel shall have accrued, after which no additional storage will be charged until the 15th day of April, 1887, so long as the grain remains in good condition.

On grain damp or liable to early damage, as indicated by its inspection when received, two (2) cents per bushel for the first ten days or part of same, and one-half (½) of one cent for each additional five days or part thereof. And upon such grain there will be no special rate for winter storage.

No grain received in store until it has been inspected and graded by authorized inspectors, unless by special agreement.

MILWAUKEE.—The same rates are charged as at Chicago.

DULUTH.—For elevating and the first twenty days' storage or part thereof, 1½ cents per bushel; for each additional fifteen days or part thereof, ½ cent per bushel. Winter storage, from Nov. 15 to May 15, 4 cents per bushel. Total annual storage charge, 10 cents per bushel.

DETROIT.—For elevating and the first ten days' storage or part thereof, 1 cent per bushel; each additional ten days or part thereof, ½ cent per bushel. Total annual storage charges, 10 cents per bushel.

TOLEDO.—For elevating and the first ten days' storage or part thereof, 1 cent per bushel; for each additional ten days or part thereof, ½ cent per bushel. Total annual storage charges, 10 cents per bushel.

BUFFALO.—For elevating and the first five days' storage or part thereof, ½ cents per bushel; vessels paying in addition ½ cent per bushel for each ten days or part thereof.

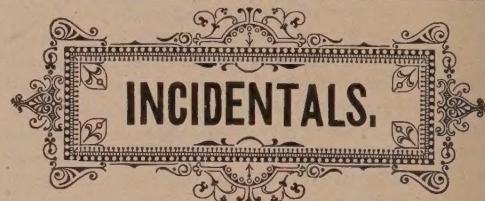
Winter storage, from Nov. 10 until five days after the opening of canal navigation, 2 cents per bushel; making a total annual storage charge of about 8 cents per bushel.

MINNEAPOLIS.—For elevating and the first twenty days' storage or part thereof, 1½ cents per bushel; each additional fifteen days or part thereof, ½ cent per bushel. Winter storage, from Nov. 1 to June 1, 4 cents per bushel. Grain whereon 4 cents winter storage has accrued the rate is ½ cent per bushel for each fifteen days continued from June 1 to Nov. 1. Total annual storage charges, 7 cents per bushel.

ST. LOUIS AND BALTIMORE.—Substantially the same as Milwaukee.

NEW YORK.—For elevating and the first ten days' storage or part thereof, ½ cent per bushel; for each additional ten days or part thereof, ¼ cent per bushel. Total annual storage charge, 9½ cents per bushel.

Some slight changes may have been made in the charges in some of the above cities since the date of our information; but we believe them to be substantially correct.



Saline county, Kan., raised 1,171,900 bushels of corn last year.

One of the new acquisitions of the English sparrow is destroying corn.

Ellendale, Minn., is rapidly assuming importance as a grain-distributing point.

Deliveries on contracts for May wheat May 2 were estimated at 7,000,000 to 8,000,000 bushels.

Crop reports from Kansas are very favorable. The acreage of wheat is small, but of oats large.

Some of the wheat delivered out in Chicago May 4 is said to have been sold as long ago as last June.

The wheat crop of Ohio this year is now estimated at 28,400,000 bushels, against 40,600,000 bushels last year.

A bill to compel warehousemen to weigh their grain once a year and report was favorably reported in Springfield.

On ocean passage during the first week of May there was an increase of 480,000 bushels of wheat and 640,000 bushels of corn.

The average price of barley in England and Wales for the year 1886, 26s 6d per quarter, was the lowest annual average on record.

Says the Omaha Bee: "Building storage elevators on paper will not create a grain market in Omaha. We want something more tangible than talk."

Buffalo elevator people complain that wheat consigned from Detroit is infested with weevil. Detroit shippers say that the reports in that regard have been very much exaggerated.

The I. B. & W.'s charge for carrying grain from Leroy, Ill., to New York is 27½ cents per 100 pounds, a reduction of 5½ cents since the Inter-State Commerce Law went into effect.

St. Louis is up in arms over the possibility of a corner in June wheat. R. B. Brown, ex-president of the Cotton Trust, and Wm. Black & Co., of New York, are said to be the manipulators.

Bradstreet's says: "Among the different classes of trade grain and flower seem to be as unfavorably affected by the Inter-State Commerce Law as any, in the increased burdens of transportation which have been imposed upon them."

A special from Dubuque, Iowa, says: "On grain shipped from the West, transportation rates will be from 3 to 5 cents in favor of this city." Tally one for the Inter-State Commerce Bill. "By their fruits ye shall know them."

A. J. Gove, grain inspector of the San Francisco (Cal.) Produce Exchange Call Board Association, reports the stock of grain in city warehouses on May 1 as follows: Wheat, 36,948 tons; barley, 15,100 tons; oats, 1,759 tons; corn, 1,804 tons. The quantity of wheat in the ware-

houses at Port Costa, May 1, was 120,600 tons, making a total of 157,548 tons in all call board warehouses, an increase of 44,714 tons during the month of April.

The D. E. Sibley elevator, at Chicago, containing about 12,000 bushels of wheat, was made "regular" April 23, until July 1, 1887.

On April 29 corn sold for 85 cents per bushel in Waco, Tex., and the price is still advancing. "Tis a slouch of drouth that blows nobody good."

The crop report for Michigan for the month of April shows severe drouth in all parts of the state. Wheat has made good growth on sandy soil, but on clay soil the growth is unsatisfactory. In the main the outlook is good, and but little of the grain will be plowed in.

Phil Armour, of Chicago, sold at New York during the week of May 1 over 1,000,000 bushels of his Milwaukee wheat, and as he is only one of a dozen big cash wheat shippers, some idea can be gained from that fact of the vast amount of wheat being sold for export.

Another wheat insect, the wheat bulb worm, is said to be sometimes as destructive as the Hessian fly and to be commonly confounded with it by wheat growers. A third brood of this species also was discovered in mid-summer wheat, so that the same measures which will destroy the fly will apply to this as well.

Another anecdote of the late William R. Travers relates to the fumes from the assay office that fill Wall street. An acquaintance new to the street, one day asked him where the gases came from. "I don-n-t know," replied Mr. Travers. "I-g-guess they have taken off the lid of the Chamber of Commerce."

The available supply of wheat, including the visible in the United States and on ocean passage for the United Kingdom and Continent May 9, was 68,143,000 bushels, a decrease of 210,000 bushels from the preceding week but a gain of 5,603,000 bushels over the same time last year. Supplies of corn were 18,414,000 bushels, against 14,302,000 bushels one year ago.

The following table compiled from official sources in the secretary of state's office, shows the total acreage and yield of wheat in Michigan in the years designated:

	Acreage.	Bushels.	Average.
1883.....	1,591,837	23,578,388	14.8
1884.....	1,495,778	24,999,717	16.7
1885.....	1,493,925	29,830,294	19.9
1886.....	1,600,830	*25,881,429	*16.18

*Estimated.

The decrease in the visible supply of wheat in four months exceeds 16,000,000 bushels, nearly all of which is the winter wheat grades. The stocks of winter wheat in Kansas City, St. Louis, Chicago, Detroit and Toledo will not exceed, all told, 3,000,000 bushels at the close of the present week. On Jan. 8 the visible supply included 20,704,000 bushels of winter wheat, of which the five Western cities noted above contained 12,972,000 bushels.

The Louisville *Courier-Journal* says: "By dint of very low prices and foreign deficiencies in supply, the exports of wheat in the present crop are the largest in any year of the five in which 1886-'87 falls. There is a gain of nearly 80 per cent. as compared with 1885-'86. The only years in which the exports exceeded those of the present were 1882-'83, 1880-'81, 1879-'80 and 1878-'79. The corn exports, however, are somewhat under the averages of late years."

Sharps have been at work in Sanilac and Huron counties, Mich., contracting for "Early White Swedish Oats." The contracts provide for the delivery of the seed to the farmers, the contractors receiving one-half the crop for the seed. The farmer also agrees not to sell any of his share of the crop for less than \$1.50 per bushel before the 1st of June following. The oats are merely ordinary good white oats. "For ways that are dark and tricks that are plain, the oat swindler is peculiar."

A common rule for measuring corn in bulk is to multiply together the length, breadth and height of the bin or barn it is in to obtain the number of cubic feet. Then multiply this product by 4 and point off the right-hand figure as decimal. If for shelled corn, multiply by 8 instead of 4. If in shuck, subtract one-third. Example: A barn 10x10x10 feet contains 1,000 cubic feet; 1,000x4=4,000; point off one at the right-hand for decimal gives 400 bushels of corn in the ear, husked. For corn in shuck subtract one-third.

New York is legislating against corners in grain or produce. The bill which passed by assembly May 5 "provides substantially that if any two or more persons, companies, corporations or individuals shall agree, directly or indirectly, to withhold from the public markets or ordin-

ary channels of trade in state, for any period, any staple article of merchandise, food, etc., and shall agree to place on the market only a limited or specific quantity within a certain time, they shall be guilty of conspiracy."

They tell on the Chicago Board of a man who lost about \$40,000 on a wheat straddle between this city and Duluth, and then went into the operation the reverse way, selling in the Duluth market and buying in this. He is now confronted by a rather large loss on the last-named operation.



A grain section has been added to the Board of Trade of Toronto, Ont.

Tickets of membership to the New York Produce Exchange are now firm at \$1,900.

Des Moines, Iowa, business men have started a Chamber of Commerce building fund with \$7,700.

The Board of Trade of Omaha, Neb., has taken possession of its new building, which cost \$75,000.

A favorable report was made to the Illinois senate on the bill repealing the special act incorporating the Chicago Board of Trade.

There is a strong feeling on the New York Produce Exchange in favor of Mr. A. E. Orr for President during the coming year, as his absence in Europe alone prevented his election last year.

Chicago Board of Trade memberships are now sold for \$2,000 each with an upward tendency. In a year from now, owing to the general improvement of business, the boys will be quoting \$3,000 for seats as cheap.

A fictitious delivery sheet of May wheat on the Chicago Board of Trade was captured by Floor Manager Harris, and it is now in the hands of Secretary Stone, who will investigate. It has, it is alleged, several false names on it. This was done to gain time, as a clerk is allowed five minutes for each name.

The grain receivers and dealers at New Orleans, La., will hereafter transact business wholly on the floor of the Produce Exchange prior to 3 o'clock P. M., instead of offering their samples on the levee, as heretofore practiced. It is expected that this move will have a general stimulating effect on trading in grain.

Secretary Baker, of the Board of Trade, Duluth, Minn., delivered his annual report to the directors April 30. It states that an expert flour grader will look the situation over and arrange for the grading of flour at that point on the same basis as Duluth wheat; also that the wheat receipts at all primary markets last year was 12,000,000 bushels, of which amount Duluth received 7,000,000 bushels.

The Chicago Board of Trade has finally adopted an insurance plan, and application for a charter for the Board of Trade Insurance Company has been sent to Springfield. The policies are to be fixed at \$5,000, and the assessments in case of the death of a member will be graded according to age. The scheme is in the interest of the poorer members of the Board, many of whom leave their families unprotected in case of death.

At a recent weekly meeting of the Chicago Board of Trade directors the petition for the establishment of an iron-clad commission rule making expulsion the penalty for violation thereof, and providing for the payment of a reward of \$2,500 to any member furnishing the information necessary to convict an offender, came up for consideration. It was finally referred to Judge Smith, the attorney of the board, for an opinion as to the legality of the proposed rule.

A new "jigger" has been put up on the Chicago Board of Trade. About a year ago it occurred to an electrical expert that a dial placed in a prominent part of the exchange hall that would show the fluctuations of wheat would save a myriad of questions. So a "vote recorder" which had been patented in 1865 by Thomas Edison and a Mr. Roberts, of the Chicago *Times*, for the purpose of registering the votes of members of legislative bodies (but which no one wanted), was brought from its resting place, and a little work and adaptation soon put it into its new line of duty. At the time of the "vote recorder" invention Edison was a poor telegraph operator, and Mr. Roberts paid the cost of having the machine built, some \$300, and it is not unlikely that he will realize handsomely from this investment, now that produce speculators see in it something of value to them.

The following resolution was adopted by the Chicago Board of Trade April 19, to settle the existing difficulties between that body and the Chamber of Commerce: "That the Board of Trade of the city of Chicago pay to the Chamber of Commerce of the city of Chicago \$87,500 in cash, surrender 1,050 shares of Chamber of Commerce stock, and pay rent to the said Chamber of Commerce up to May 15, 1887, \$23,750, upon the cancellation of two leases given by the said Chamber of Commerce to the said Board of Trade—the one dated the 30th day of August, 1865, of a certain portion of the Chamber of Commerce

building, situated on the southeast corner of Washington and La Salle streets, and the other dated the 1st day of January, 1874, of the building known as the 'Commercial Building,' situated next south of the Chamber of Commerce building aforesaid." The total number of votes cast was 610, of which only 23 were in the negative.

The monthly meeting of the board of directors of the Corn and Flour Exchange of Baltimore, Md., was held May 9. The thirty-second annual report of the Exchange for the year ended Dec. 31, 1886, has just been issued. It is a book comprising 297 pages of very useful information to every merchant. It contains, among other things, the receipts of Baltimore, and the exports therefrom of flour and grain from 1870 to 1886 inclusive; also the prices of all the different grades for the year.

Among the rules and regulations for weighing grain adopted by the board of trustees of the Buffalo (N. Y.) Merchants' Exchange is the following: "On all grain weighed into canal boats the weighmaster is required to keep a special record of such weights and obtain the output of each boat from the weighmaster at destination, and on the 15th day of each month a statement to be made of previous month's business, and same be posted on the bulletin of the Merchants' Exchange."

The Chicago Board of Trade Committee on Weighing has, at the solicitation of the leading grain receivers here, sent out an appeal to country shippers to use every effort to secure the passage by the Illinois legislature of Senate bill No. 368 and House bill No. 769. Their passage will secure proper weights for use in the purchase, sale and transportation of grain sold by sample, viz., by the hopper-scale system, which has been tried and found entirely satisfactory. Much dissatisfaction exists over the present system of weighing.

During the past month the organization of the Board of Trade Stock Exchange, at Chicago, has been completed. It is decided that the officers and directors of the Board of Trade constitute the officers and directors of the exchange. The officers are: A. M. Wright, president; George D. Rumsey, first vice president; W. S. Seaverns, second vice-president; George F. Stone, secretary. Committees on arbitration and appeals were appointed. Business will begin as soon as the necessary quarters are in readiness. Membership is open only to members of the Board of Trade in good standing, and the initiation fees fixed at \$10, which will soon be increased. The new exchange now has 455 members and the ranks are rapidly filling.

A GREAT COUNTRY.

A tall, lank man wearing a slouch hat and a blue jeans suit went into the Bingham House last evening, and sauntering up to the register, wrote in a scrawling hand B. F. Carson, Cheyenne, Wyoming.

"Yes, stranger, I'm from Cheyenne, and don't you forget it, either."

"Pretty fine country out there," ventured a little man as he peeped over the top of a newspaper he held in his hand.

"Pretty fine country!" echoed the man from Cheyenne; "Well now you'd just better git up and snort."

"Talk about Kentucky being a great grass and corn-growing country," continued the stranger, scraping a match on the counter and lighting a cigar. "Why, we kin knock 'em hollow. I own a farm near Cheyenne, and I don't mind tellin' you I've made money out of it, too. Would you believe it that we can eat corn fresh from the ear whenever we want to?"

"No," said the little man boldly.

"What!" he said with a glare.

"I used the word interrogatively."

"Oh, yes, sir; if we want an ear of corn for dinner on Sundays, or any other day for that matter, my wife says so. I then go out and plant two or three grains of corn, and when I wake up in the morning I look out of the window, and there, nodding and bending in the zephyrs, are a number of golden-tasseled stalks of corn ripe for picking. Great country, that," and the truthful Westerner stepped into the elevator and was carried to his room.—*Philadelphia North American*.

AGRICULTURE IN JAPAN.

An American writer who visited Japan has published an interesting account of what he saw and heard. In speaking of the agricultural districts he says: "Of labor saving implements or machines Japan has very few. Even the plow is but little used, a broad-bladed mattock being the principal tool for stirring the soil, and there is not a flour mill in the country, unless the hand-grinding machine similar to that depicted on the tombs of the ancient Egyptians can be called by that name. Wheat is for the most part hulled and eaten as rice is, that which is ground being made into unleavened cakes. There is no word in the Japanese language for bread, nor any process in the national cookery analogous to yeast fermentation. In many parts of the country the soil is extremely fertile, and the cultivation is excellent. Near Kioto, the old capital, it is not uncommon to grow seventy bushels of rice to the acre, as the second crop of the year, from the same land which has produced forty bushels of wheat as a winter crop. Nor is this all the year's produce, for early vegetables are sown between the rows of wheat in February, maturing with the latter in May. After the wheat harvest the land is prepared for and planted with rice, which is harvested in October. Barley and rye, like wheat, are planted in the autumn. Maize is cultivated to some extent, and millet is produced abundantly in altitudes where rice will not flourish."

ELEVATOR AND GRAIN NEWS

A \$20,000 distillery is talked of in Crete, Neb.
A starch mill is to be erected at Winfield, Kan.
An elevator is being erected at Shoal Lake, Man.
Chas. Duffer will establish a distillery at A. B. C., Tenn.
Casper Koehler, brewer, Lancaster, Pa., has assigned.
Gridley, Cal., is rejoicing in a brand new Board of Trade.
M. Sanders, grain dealer, Los Angeles, Cal., has sold out.
J. H. Hathorn has sold out his grain business at Riley, Ind.
Chas. Nobbe, Litchfield, Ill., is erecting a large elevator.
Jackson & Co., grain dealers, Denver, Col., have dissolved.
Chicago grain trimmers are getting \$1.50 per 1,000 bushels.
M. Boney & Co., grain dealers, Lawrence, Mass., have sold out.
Schmidt & Schoenfelder, brewers, Oakland, Cal., have dissolved.
S. P. Sweitzer will establish a steam distillery at Sand Patch, Pa.
Atchison, Kan., does an annual grain business of \$5,500,000.
The Charter Oak Elevator at Petersburg, Ill., is nearly completed.
Mr. Millis will establish a starch factory at Independence, Kan.
A. B. Walker is closing out his grain business at Cherokee, Kan.
F. M. Perdue has started a distillery at Richland Station, Tenn.
Ottawa, Kan., is mentioned as an excellent location for a starch factory.
A distillery has been started near Mitchellville, Tenn., by Mr. Dennis.
Vorhes & Junod, grain dealers, Carroll, Iowa, have dissolved partnership.
A grain dealer's association was held at Forest, Ill., on Monday, May 2nd.
The grain firm of Campbell, Carter & Co., Nottingham, Pa., have dissolved.
Hart & Little, grain brokers, New York City, have dissolved partnership.
Delp & Groff, grain dealers, Indianapolis, Ind., have dissolved partnership.
J. K. Boswell & Son, brewers, Quebec, Quebec., have dissolved partnership.
Work will shortly begin on Smith & Fuller's grain elevator at Creston, Neb.
Mr. Abram McMahan writes us that he is now buying grain at Overton, Neb.
Several parties at Kinston, N. C., contemplate establishing a starch factory.
Another elevator is to be built this season at Buffalo. Its cost will be \$400,000.
S. A. Brown & Co. have over 200,000 bushels of corn in store at Belleflower, Ill.
Bayley & Co., of Warrenton, Va., will rebuild their distillery, recently burned.
Catlin & Co., grain commission merchants, Chicago, have dissolved partnership.
The Atlanta Provision Co., Atlanta, Ga., dealers in grain, etc., are closing out.
R. P. Wood, of Colfax, Ill., will erect a grain elevator that will cost about \$2,000.
A small distillery will be started at Elkin, Ky., by P. B. Elkin and F. P. Merritt.
Mr. Mouray, formerly in the grain business at Canton, Ill., has moved to Nebraska.
A grain elevator with a capacity of 500,000 bushels is to be erected at Springfield, Mo.
Hillsboro's, Dak., sixth elevator, with a capacity of 60,000 bushels, was completed May 1.
The value of grain held in Leroy, Ill., at this time, is estimated to be more than \$100,000.
Moses & Latshaw, grain dealers, Anselma, Pa., have effected a dissolution of partnership.
H. C. Lightner & Co., grain commission merchants, Chicago, have dissolved partnership.
Oliver Dalrymple, the bonanza farmer of Dakota, will this spring put in 32,000 acres of wheat.
Franks & Gilmore, of Gridley, Ill., are having new Fairbank scales put up at their grain office.
A company will be chartered at Sheffield, Ala., to build a grain elevator. A. J. Moses is interested.
The Northern Dakota Elevator Company has contracted to have its elevators in Minnesota and Dakota all newly

Painted. There are thirty-two of them, eighteen in Minnesota, the remainder in Dakota.

The Lake Superior Elevator Company, of Duluth, Minn., has increased its capital to \$912,600.

A Board of Trade was organized at Fairmont, Neb., April 21, and the town is expected to boom.

Chartera & Miller, grain dealers, Severance, Kan., have dissolved partnership. C. E. Miller succeeds.

Durant, Elmore & Bliss are successors to Durant & Elmore in the grain business at Albany, N. Y.

The Fred Miller Brewing Co., of Milwaukee, Wis., has been incorporated. Capital stock \$200,000.

W. T. Lamoreaux is successor to the Grand Rapids Grain and Seed Company, Grand Rapids, Mich.

Geo. Bullen & Co., malsters, Chicago, Ill., have been licensed to incorporate. Capital stock \$500,000.

The Newark Enterprise Brewing Co., Newark, N. J., have incorporated as the Enterprise Brewing Co.

An effort is being made at Fremont, Neb., to form a stock company to start the brewery at that point.

Brown, Gill & Co., grain commission merchants, New York City, have renewed their limited partnership.

Sceley, Son & Co. are building a steam elevator at Creston, Neb., for the Nye Wilson Morehouse Company.

J. R. Patterson & Co., of Franklin, Ark., will rebuild their distillery, lately burned. Their loss was \$3,000.

Sutcliffe & Ashman, wholesale grain dealers at Los Angeles, Cal., are succeeded by Sutcliffe, Ashman & Co.

The Plymouth Brewing Company, of Plymouth, Wis., has filed articles of incorporation. Capital stock, \$12,500.

Geo. W. Woodard & Son, grain dealers, Shelby, Mich., have sold out to Geo. R. Hancock & Son, of Montague, Mich.

A citizens' warehouse company has been formed at New Ulm, Minn., with \$20,000 capital, to buy and sell grain.

A 75,000-bushel elevator will be built at Bay City, Mich., in connection with the new "Phoenix" flouring mills.

Frederick Busch, of the brewing firm of F. Busch & Son, Hastings, Minn., has sold his half interest in the business.

The North Chicago Brewing and Malting Co., of Chicago, Ill., has been licensed to incorporate. Capital stock \$150,000.

A site has been donated for a brewery at Florence, Ala. The Florence Land, Mining and Mfg. Co. can give particulars.

Nebraska City, Neb., has the wonder of the 19th century in the shape of a prohibition mule. He pumps water for a brewery.

Mr. I. R. Krum, formerly of Bloomington, Ill., has removed to Chicago, where he has formed a partnership in the grain business.

The business men of Sioux Falls, Dak., have decided to incorporate a Board of Trade and erect a \$50,000 building of native granite.

The name of the Bartholomy & Burgweger Brewing Company, Chicago, Ill., has been changed to the Wm. Ruehl Brewing Company.

Some of the stockholders in the Ottumwa, Iowa, starch factory have bought ground at Fremont, Neb., and will erect a large factory there.

The Farmers' Alliance of Blooming Grove, Minn., will build a grain warehouse at Waterville, to be ready for the early crop of winter wheat.

Mr. Duff, of the grain firm of Duff & Duncan, at Bladen, Neb., has sold his interest to Mr. Thorne. The style is now Duncan & Thorne.

Mr. Hopkins, of Wilber, Neb., is putting in a 700-bushel hopper scale and otherwise improving his elevator. J. A. Campbell has the contract.

The office of the grain inspector of Minnesota has been moved to the new quarters prepared in the lower part of the capitol building at St. Paul.

Messrs. Van Houten Bros. & Little have conveyed their interest in the Bismarck, Dak., grain elevator to the Hon. T. C. Power, of Fort Benton, Mont.

Col. F. M. Gilmer and F. H. Merritt purchased April 5 an interest in the Union Warehouse and Elevator Company at Montgomery, Ala. The sum paid was some \$65,000.

Geo. Krug, agent for the Anheuser-Busch Brewing Association, of St. Louis, Mo., purchased four lots at Lincoln, Neb., April 15, on which his company will erect buildings, etc.

J. Cole & Co., Blanchard, Iowa, have recently added to their elevator a feed mill; also belting, buckets and other supplies, which they purchased of Geo. L. Jarrett, Des Moines, Iowa.

T. C. Hodgson has been appointed chief deputy grain inspector at St. Paul, and A. C. Clausen and John Shelly have been reappointed, the former at Minneapolis and the latter at Duluth.

Van Vliet, Bostwick & Co., grain commission merchants, New York City, have dissolved partnership, and two new firms have been formed—D. M. Van Vliet & Co. and Bostwick & Sheridan.

The *Republican* of Sterling, Kan., says: "Our grain men report all the grain shipped from this point is now going to the Western market. It formerly went to Kansas City and from there was shipped right through here for the Western trade. Now this trade is ours and our

farmers receive the benefit of the freight from here to Kansas City. This is the outgrowth of the Inter-State Commerce Law."

V. W. Bullock, for twelve years a prominent grain dealer of Burlington, Iowa, has abandoned the business and removed to Denver, Col., claiming that the Inter-State Commerce Law placed such restrictions upon the grain business as to make it unprofitable.

The commission firm of Tufts & Walker, Chicago, has dissolved by mutual consent, Mr. E. L. Tufts retiring. The business is continued by Messrs. E. C. and J. B. Walker under the firm name of Walker & Co.

The grain buyers of Leroy, Ill., are holding vast quantities of corn and oats for an advance in the market. The I. B. & W. Railroad has conceded a reduction of three cents a bushel from that point to Indianapolis.

A huge elevator, with a capacity of 1,000,000 bushels of wheat is to be built at Kewatin, Man., in connection with the large flour mill to be constructed there. Mr. Alexander Mitchell, of Montreal, is the principal mover in this enterprise.

The rate of transportation from West Point to Omaha, Neb., is so high that it has practically shut out the producers of Cuming county, so the citizens of the former place rather enjoy Omaha's agitation in regard to organizing a grain exchange and building storage elevators.

A stock company has been formed at Shreveport, La., to erect an opera house combined with a board of trade rooms, the plan being to erect a building costing from \$40,000 to \$50,000, with all modern conveniences and improvements, and nearly all the stock was subscribed on the first day.

The furnishing of seed grain to the farmers of Dakota by the C. M. & St. P. Railroad is a boon of inestimable value to that section. Heretofore seed could only be procured at exorbitant figures, and as a result the most reasonable terms would make it cost the farmer from \$1.30 to \$1.50 per bushel.

The Central Elevator Co., capital stock \$200,000, has been incorporated at Chattanooga, Tenn., by T. H. Cheek, Albert Eakin, J. L. McCollum, J. C. Shafner, W. A. Willingham and others. The company will purchase and enlarge the grain elevator of Eakin & Cheek and add machinery for cleaning grain.

A malt house now doing business in Peoria, Ill., desires to transfer its business to Havana, Ill., if a suitable building can be obtained. The establishment now employs fourteen men. Should it remove here it would propose to double its capacity. The corn of this region just suits its want.—*Havana Republican*.

J. B. M. Kehlor, President of the Litchfield Milling Company, will commence the erection of an immense grain elevator, with a capacity of 500,000 bushels, at Litchfield, Ill. When the new elevator is completed, with those now in operation, Litchfield will have a storing capacity for about 1,000,000 bushels of grain.

Sherman, Tex., has two wholesale grain houses, and the grain trade of that city is one of its most important interests. One house during the past year shipped 200,000 bushels of corn, 150,000 bushels of oats and sixty-two carloads of mixed bran, hay and oats. The aggregate grain business done by the city during 1886 was \$1,000,000.

Owing to drouth, oats and small grain in the agricultural districts of Texas, with the exception of the extreme southwest and northwest, are a total failure, and corn hangs on the ragged edge of destruction. So serious is the outlook that wholesale houses are withdrawing their men from the road, pending a solution of the rainfall problem.

A new elevator of 500,000 bushels' capacity is being built at Port Huron, Mich., by J. E. Boisford, Wm. Jenkinson, J. C. Johnstone and John Jenkinson, of Port Huron, and Jas. Hosie, of Wayne. The capital stock is \$100,000, and it is the intention to put nearly all this amount in the building, and complete it by harvest time. It is to be first-class in all respects.

Elevator I, the new house of the Lake Superior Elevator Company at Duluth, Minn., is now completed. It has a capacity of 1,500,000 bushels, and this will raise the wheat blockade which has existed since January. The house is a first-class one in every particular. It has receiving but no shipping machinery. A companion house is to be built to do the shipping. With this house filled Duluth will have 12,000,000 bushels of wheat to ship after navigation opens.

Wm. H. Harper, manager of the Chicago and Pacific Elevator Company, Chicago, recently bought the Ulrich, Bush & Co. elevator, on the North Branch, and it will hereafter be known as Pacific Elevator "C." Mr. Harper presented a petition to the Board of Trade asking that the E. Hess Elevators "A" and "B" and the F. O. Swannell Elevator be made regular, the grain to be deliverable through Pacific Elevators "A" and "B." There are about 225,000 bushels of wheat in these elevators.

The new 1,500,000-bushel elevator of the Lake Superior Elevator Company at Duluth, Minn., was declared regular by the directors of the Board of Trade April 20. The elevator cost \$150,000 and has been built since the middle of December by J. T. Moulton & Co., of Chicago. It is provided with receiving machinery but no shipping. A consort house will be built later in the year, which will do the shipping. The completion of this elevator raises the wheat blockade which has existed in that city since the 1st of January. Another elevator of the same capacity, owned by the Union Improvement and Elevator Company, will be completed the 1st of August.

Fires, Casualties, Etc.

N. C. Brooks, formerly a grain dealer at Fort Worth, Tex., has died.

A fire at Papillion, Neb., April 24, destroyed 1,200 bushels of corn.

A recent fire destroyed Berry's distillery at Owensboro, Ky. Loss, \$40,000.

Samuel W. Leigh, grain commission merchant, New York City, has died.

The death is announced of Morgan L. Fitch, grain dealer, Mattawan, Mich.

The distillery of J. S. & H. Worley, of Tail's Creek, Ga., was recently burned.

A brewery burned at Cincinnati, Ohio, recently which carried an insurance of \$50,000.

The grain warehouse of James Allen, at Allenford, Ont., was recently destroyed by fire.

E. E. Samuel, of the firm of Samuel & Lonergan, grain dealers, St. Louis, Mo., has died.

The Board of Trade building at Logan, Utah, was recently destroyed by fire. Loss, \$27,000.

The malt house of A. F. Bullen, Chicago, was damaged by fire to the extent of \$10,000 April 25.

Wm. D. Morgan, vice-president of the New York City Produce Exchange, died April 24 of pneumonia.

The large grain storehouse of Shaw & Wright, at Hanover, N. H., was totally destroyed by fire May 10.

Fire destroyed a distillery at Leitchfield, Ky., some weeks ago, on which there was \$20,000 insurance.

The roof of G. G. White & Co.'s distillery, at Paris, Ky., was carried out of sight by the recent cyclone.

The decease is announced of Frederick Wehrle, vice-president of the Phoenix Brewing Co., Louisville, Ky.

The distillery of the J. M. Atherton Co., at New Haven, Ky., was destroyed by fire some weeks ago. Loss \$30,000.

Jacob Obermann, of the brewing firm of J. Obermann & Co., Milwaukee, Wis., died April 24 of paralysis of the heart.

B. F. Blaker & Co., grain and lumber dealers and millers of Pleasanton, Kan., have been burned out. Loss \$3,500; insurance \$2,000.

A fire at Rock Falls, Iowa, April 21, destroyed Brown & Perrett's elevator and 20,000 bushels of oats. Loss \$5,000; insurance \$2,500.

The large grain elevator owned by L. D. Pettit, of Rapid City, Dak., was recently destroyed by fire. Loss \$10,000; insurance \$4,500.

Carruthers & Co., grain commission merchants and brokers, of New York City, suspended May 5. They were largely short on May wheat.

Some weeks ago prairie fire, fifteen miles north of Grand Forks, Dak., destroyed a warehouse of the Minneapolis and Northern Elevator Company.

The large elevator and feed mill of F. P. Holt, at Windom, Kan., was totally destroyed by fire April 13. Loss \$5,000; only partially insured.

John Penfield, of Rantoul, Ill., who has a grain office at Gifford, this state, was stricken with paralysis April 14. It is feared that he cannot recover.

Fire broke out in the hop house of the Philip Best Brewing Co. May 2, causing a loss of about \$25,000. The cause was spontaneous combustion.

The Minneapolis & Northern Elevator Company's elevator at Conway, Dak., was totally destroyed by fire April 16; 25,000 bushels of wheat were burned.

The brewery of Joseph Ibach, at Mankato, Minn., was burned to the ground April 25, with all its contents. The origin of the fire is unknown. Loss \$2,500; insurance \$1,500.

George H. Thompson, grain dealer, San Francisco, Cal., with branches at Los Angeles and Visalia, has filed a petition of insolvency. Liabilities \$100,000; assets \$91,000.

The broom corn warehouse of W. S. Hancock, at 186 East Kinzie street, Chicago, was damaged by fire April 9. The loss on the building and stock is about \$2,000; fully insured.

The elevator at Willmar, Minn., owned by the Northwestern Elevator Company, of Minneapolis, Minn., burned April 20. Twenty thousand bushels of wheat were destroyed. Loss about \$25,000.

Harrison & Griffin's corn crib, capacity 40,000 bushels, at Anita, Iowa, burned April 27. Mr. R. Davis lost 15,000 bushels of corn which he had stored there. Insurance on the building amounted to \$2,800.

The large warehouse belonging to Henley & Nixon at Fairmount, Ind., together with several hundred bushels of wheat, corn and flaxseed, was burned to the ground May 6. The total loss is estimated at \$6,000; insurance, \$5,000.

Mrs. Kate Priestly, the widow of Charles Priestly, who for several years was a successful Board of Trade man in Chicago, was pronounced insane recently and sent to the asylum. Her husband drank excessively, and during

their honeymoon while en route to Europe, he jumped overboard during a fit of delirium tremens and was drowned. His wife never recovered from the shock and finally became violently insane.

The Union Elevator at Morris, Minn., owned by C. Cogel, of Red Wing, and operated by N. R. Spurr, was destroyed by fire April 17. Loss on the building \$6,000; insured for \$4,500. About 12,000 bushels of wheat were destroyed; fully insured.

The grain warehouse and store of John Cray, at Belle River, Mich., were totally destroyed by fire April 16. Loss \$10,000; insurance \$5,000. A spark from a chimney falling on the roof of the warehouse caused the fire. Mr. Cray has not yet decided whether he will rebuild or not.

Fire recently destroyed the Chase Elevator and 7,000 bushels of grain at Buckley, Ill. The fire originated in the cob-carrier; the igniting spark probably came from the furnace. The building was owned by Mrs. and Miss Hurlburt, and was worth about \$10,000. Insurance, \$2,000.

James J. Busby, bookkeeper for the grain firm of Sheridan & Ryan, St. Louis, Mo., recently embezzled \$4,000 of his employers' money and left for some foreign port—presumably Canada. May wheat is supposed to have precipitated his action. That's the way it works—short on wheat, long on Canada.

The body of Henry Bergstrom, who for many years was in the wheat business at Red Wing, Minn., but lately a resident of Cannon River Falls, that state, was found floating in the Cannon River April 13. He probably committed suicide while temporarily insane. He was associated with Mr. Bosch, of Iowa, in the wheat business, under the firm name of Bosch & Bergstrom.

The new grain elevator and five-story flouring mills of Mills & Houlton, at Elk River, Minn., were completely destroyed by fire May 4. About 20,000 bushels of wheat and a large quantity of flour and feed were burned. The origin of the fire is unknown. The total loss of Mills & Houlton is \$80,000, on which there is an insurance of about \$55,000. It is understood that they will rebuild at once, and on a larger scale than before.

A disastrous fire occurred at Louisville, Ky., May 2, which completely destroyed the immense grain warehouse of Brown, Johnson & Co., the large nine-story elevator of Strater Bros., and fourteen freight cars belonging to the Louisville & New Albany Railroad, loaded with grain. The loss on the warehouses is \$90,000; fully insured. Strater Bros.' loss is \$80,000; insurance \$58,000. The loss on the cars is \$50,000. The origin of the fire is not known.

By the fall of a grain storage house in the rear of Hess & Co.'s elevator, Chicago, April 17, one man, Mr. Arthur English, was seriously injured, and about 15,000 bushels of grain dumped into the street. The building was originally built as a malt-house about six years ago, but of late whenever the elevator was crowded it was used by Hess & Co. to store grain in. It was two stories and a basement in height, and 90x100 feet, and when filled would hold about 150,000 bushels. For some time it has been known to be a dangerous structure, and four months ago, when full of oats, the corner of the building on the alley fell out, and the grain all ran into the basement. The west wall was badly bulged out by this accident, but the building, instead of being condemned, was braced up, shores were put under the floors, the walls were braced from the outside, and iron rods run through. It was then stored with corn. The building is a complete wreck, but most of the grain can be saved. The monetary loss is about \$4,000.

TO PROHIBIT TRADING IN FUTURES.

It is not probable that the passage of Senator Forman's bill would break up the Chicago Board of Trade as well as the bucket shops, as intimated in yesterday's advices from Springfield, but it would hamper the business of the board, and there is no room for doubt that it would work injury to the class it is professedly intended to benefit. To prohibit the selling of grain or provisions unless the seller has "then and there a duly executed warehouse receipt, calling for and describing" the property so sold, would very much lessen the present facilities which the farmer has for disposing of his produce. It would in all probability result in widening by a considerable percentage the difference between the price received by the producer and that paid by the consumer.

The packer buys hogs at the current market price, and a large percentage of the product is sold by him the same day for delivery at some time in the future. He sells the pork, or lard, or middles long before they are ready for delivery, and perhaps even before the animals enter his slaughter-house. By doing so he can count on the profit of the operation, and can borrow money for it, because the lender knows that the business is comparatively secure. The latter as well as the former would be obliged to allow a much wider margin if compelled to hold the property while the meat was being cured, because of the risk of loss by a decline in the market in the meantime. But the selling here referred to could not be done under a law which discouraged buyers from taking hold by abridging their freedom to buy and sell the property on a speculative basis. The grain business would suffer in a similar way by the passage of such a bill. The farmer is now able to sell his wheat and corn whenever he wishes to do so, because the buyer in the country can sell its equivalent the same day in this market, and perhaps without any intention of sending it here at all. The whole visible supply

of wheat in the Northwest was sold here early last winter, and has since then been carried by the speculative trade till wanted for shipment to the consumer. But for the facilities thus afforded the price of wheat would possibly have been 20 cents per bushel less than that quoted—in all probability it would have been fully 10 cents less—the difference being a direct loss of so much to the actual producer. Not only this, but the prices obtainable by the first seller would have fluctuated much more wildly than they are ever again likely to do on account of a corner. Under a law prohibiting a free disposal of the right to deliver or to call for delivery we should witness a return to the conditions of "the good old times," when the arrival of a few more wagon-loads than had been counted on for a given day would depress the selling price 40 or 50 per cent., with the original figure a very low one at that. The speculative trading, as distinguished from the mere betting of the bucket shop, acts as a flywheel does with the steam engine, equalizing the pressure and preventing a sudden stoppage by a temporary increase of the work to be done.

The opinion has gained ground extensively in the country that the trading in produce on 'Change in this city is done at the expense of the farming community, and that the latter would be very much better off without it. This is a big mistake. Undoubtedly a great deal of gambling is done on 'Change which does not inure to the benefit of the farmer or any one else; but as a whole the Board of Trade is a friend which the farmer could not well do without, and whose power, as well as intentions, he cannot always measure. It is true that the trading costs something, but if the whole thing could be closely footed up it would probably be found that this cost is much less than what is added by it to the sum which the farmer receives for his produce. In other words, the protest, if any, ought to come from the ultimate consumer, and not from the producer. The latter hurts himself when he injures his friend.—*Chicago Tribune*.

APPROXIMATE WHEAT CROP OF THE WORLD IN 1886.

The following tables and statements, issued by the United States Department of Agriculture, have been published by the *New York Produce Exchange Weekly* of April 1. The tables are compiled from the most complete returns available, showing the approximate wheat crop of the principal wheat-producing countries of the world in 1886, expressed in American standard Winchester bushels. The statement is as follows, comparison being made with a similar statement of the crops of 1885, corrected in several instances by the latest official estimates of that year:

	Yield in Winchester bushels.	
	1886.	1885.
United States*	457,218,000	357,112,000
Canada*	37,219,234	35,000,000
Arg. Republic and Chili	21,800,625	25,000,000
Total for Am. countries named...	523,237,859	417,112,000
Europe.		
Austria*	31,402,613	39,725,000
Hungary*	106,150,875	113,805,459
Belgium	18,514,688	19,573,926
Denmark	4,731,531	5,000,000
France*	299,107,620	311,733,033
Germany	82,000,000	95,505,881
Great Britain and Ireland*	65,285,353	82,145,888
Greece	4,937,250	4,965,625
Italy	129,412,133	118,244,589
Netherlands	4,937,250	4,965,625
Portugal	8,228,750	7,661,250
Roumania	22,620,063	22,620,063
Russia* (including Poland)	213,907,084	209,192,256
Servia	4,525,813	4,681,875
Spain	131,660,000	113,500,000
Sweden and Norway	2,468,625	2,837,500
Switzerland	1,645,750	2,057,188
Turkey in Europe	41,143,730	45,400,000
Total European countries named	1,172,688,148	1,203,624,158
Miscellaneous.		
Australasia*	22,258,146	37,077,134
India*	258,317,632	302,265,077
Egypt	16,457,500	14,187,500
Algeria	32,915,000	22,700,000
Total, miscellaneous	329,948,278	376,229,711

Grand total, above countries 2,025,874,285 1,996,965,869
*Official, but not the final official estimates, except in the case of the United States, Great Britain and Ireland. In the above table Austria's 1886 crop is from an official estimate much later than the one given by the Department.

Taking the countries reported on for 1886, the figures for American and European countries credited with an aggregate production of 1,620,278,420 bushels, or four-fifths of the total, are official, either preliminary or final. For countries credited with the remaining one-fifth, or 405,595,865 bushels, the figures are unofficial, being based chiefly upon estimates submitted at the Vienna International Congress in August last. It is unlikely, however, that the general result will be appreciably affected by final official estimates. The 1886 crop, compared with that of 1885, shows a deficiency in the nineteen European countries of 30,936,010 bushels, and in the miscellaneous countries of 46,281,433 bushels, making a total deficiency, so far as reported on, of 77,217,443 bushels. The United States and other American countries named, however, show an increase of 106,125,897 bushels, thus showing a net increase in the world's 1886 crop, so far as reported on, of 28,908,416 bushels. This effectually disposes of the repeated statements that the wheat crop was deficient the world over.

Editorial Mention.

THE New German Liberals are forming an anti-corn league.

GEN. POE says there is no danger of the old locks at the Sault becoming disabled.

MILLING in transit orders still continues to breed no end of trouble with the Northwestern roads.

THE passage of Mr. Finn's bill by the New York legislature will make (if it becomes a law) the running of "corners" a conspiracy.

AN elevator at Meaford, Ont., is advertised for sale in this issue. It is said to be one of the best elevators of the size in Canada and is eligibly situated for business.

THE *Register* of Des Moines, Iowa, wants a carload rate on grain and stock to apply to the whole of Iowa, and "an equalized rate for jobbers and manufacturers."

THE grain merchants of Indianapolis are still much annoyed through the failure of the Northern and Southern lines to make a tariff by which they can resume shipments to the Southern markets.

MR. J. W. SANBORN, secretary of the State Board of Agriculture, St. Louis, Mo., furnishes the following crop report for that state for April: Wheat is rated at 97, a decided improvement for the month, and the comparative area of oats is 103.

THE card of J. A. Campbell, of Lincoln, Neb., a millwright and elevator constructor and builder of large experience, will appear in our next issue. Mr. Campbell solicits correspondence on all questions pertaining to elevator work and construction.

THE Adams Car Puller has evidently met and filled a long-felt want. A circular just issued by the manufacturer, Mr. W. G. Adams, of Sandwich, Ill., contains fac-simile letters from a number of grain men and other users who are enthusiastic in its praise.

SENATOR FORMAN's bill in the Illinois legislature for the suppression of trading in futures, while ostensibly backed by millers, seems to be a retaliatory measure designed by the bucket-shop people to punish the Chicago Board of Trade in case the Riddle bill becomes a law. To us the bill seems essentially vicious.

THE Buffalo Scale Co. may well feel proud of the facts stated in the article published elsewhere from the *Buffalo Commercial Advertiser* and entitled "A Big Contract." This was, we believe, the largest single contract for scales ever awarded to one firm, and the Buffalo folks may be pardoned if they feel a little elated in securing it.

THE Royal Commission on Railways, at a recent sitting at Hamilton, Ont., examined a number of grain dealers and others in regard to their grievances against the different railroads. Thos. W. Lennox, of Thornton, complained of difficulty in getting cars. Last year he had 20,000 bushels of grain on hand, and in consequence of a delay in getting cars over the N. & N. W. he lost 5 cents per bushel. The differential rates of the C. P. R. R. were spoken of as unfair to vessels trading to Port Arthur. For example, the C. P. charged as much for grain from Port Arthur to Winnipeg as from Montreal, Hamilton or Toronto to Winnipeg, so that little grain came by water

to Port Arthur except early in the season when the C. P. could not handle it. Mr. Wm. Gillesby and C. R. Smith, grain dealers, were also examined, and the general complaint is that too much discrimination is made in favor of the long haul.

EVEN if the Inter-State Commerce Bill is vicious, as its opponents claim, the Commissioners are making its operation still more vicious by the manner in which they are handling the law. They have, contrary to the spirit of the law, made themselves and not the law the real arbiter. This Mr. Reagan conclusively shows in his recent letter to Mr. Morrison.

THE BOSTON BELTING COMPANY has just completed and shipped to the Pennsylvania Railroad, for its new grain elevator at Philadelphia, a rubber belt 850 feet long, 36 inches wide, five-ply which weighs about three tons. The company has also recently belted three large elevators at Buffalo, N. Y., two at Duluth, Minn., and has three large contracts now on hand.

MESSRS. JAMES LEFFEL & Co., of Springfield Ohio, have placed us under obligations for a copy of their handsome new engine catalogue. It is in all respects as neat a catalogue as handsome cuts, fine paper and good press-work could make; and its contents will be found interesting to the users of steam power. A copy will be sent to those who make application for one.

It seems that a syndicate of Galveston millionaires are interested in the Chicago wheat deal. An immense amount of wheat was sold on their account a few days since on which they netted three cents a bushel; and they still have in store at Chicago 1,800,000 bushels of wheat and contracts for half a million bushels more. This they are said to be holding until it reaches the dollar mark.

THE use of the grain drill has freed Northern grain fields from the depredations of the thieving pigeon during the spring and fall seeding time. Hitherto, when the seed was sown broadcast, much of it was left on the surface, making a tempting bait for flocks of pigeons, but now the grain is all buried beneath the surface, and a newly-plowed field bare of seed has no attractions for them.

ALTHOUGH the Buffalo Exchange has adopted precautionary measures against irregularities in the weighing of grain, to prevent a recurrence of the complaints of past years, nevertheless shortages are already reported in cargoes arriving. One propeller from Chicago ran nearly 600 bushels short, while two schooners overran 200 bushels each. Buffalo grain weighing does not seem to be much of a success.

A SYNDICATE representing the Belt Line Railroad Company has purchased 250 acres in the north-eastern suburbs of Joliet, Ill., on which it is said they will erect depots, elevators, stock yards, etc. Joliet being on a direct line from the great producing fields of the West to the Eastern seaboard, an attempt will be made to make that city the chief transfer point instead of Chicago, where the projectors of this scheme allege freights of all kinds are blockaded and storage is high.

Hon. A. P. Collins, of Solomon, Kan., in a paper written for the quarterly report of the Kansas State Board of Agriculture, says that wheat is worth in the market about half what it was a few years ago, while the cost of production is undiminished. He attributes this state of affairs to the fact that the high prices prevailing a few years ago pushed the poorer classes of the world to the wall for a means of support, and in consequence a large development of the world's resources has been affected, and as the high prices have substituted other grains for wheat, the once growing demand for American wheat in Europe has been checked. The production of wheat in

this country has nevertheless been going steadily on, and our market reports show that we have at this time about 62,000,000 bushels in elevators for which there is no market.

MR. H. W. CALDWELL, of this city, has just returned from a business trip South, and as a result brought back orders from the great Cotton Seed Oil Company for 5,000 seamless steel buckets, 88 Caldwell Patent Elevator Boots, 17,000 feet of 9 and 12 inch Caldwell Conveyor, and 30,000 bolts. This extensive order is for the cotton seed oil mills to be erected at Houston, New Orleans, Memphis, Little Rock, Atlanta, Montgomery, Wilmington and Charleston. Mr. Caldwell has earned congratulations.

As briefly announced elsewhere in the letter of the Moline Malleable Iron Co., the United States Court has decided that the drive chain heretofore made by the Moline people is an infringement on the patents of the Ewart Manufacturing Co., and has enjoined them from its further manufacture and sale. The Moline Malleable Iron Co. have settled for all past infringement, and no suits will be brought against their customers. The Link-Belt Machinery Co. will hereafter furnish repairs on the Moline chains now in use.

WE hardly need direct the reader's attention to the prominent advertisement of the Barnard & Leas Mfg. Co., of Moline, Ill. Few firms in any line of business are more widely known than this company, and the line of machinery made by them is now in use in mills and elevators in almost every part of the world. They solicit correspondence from all elevator men who have need of anything in the way of elevator machinery. Their long acquaintance with the trade has fully posted them as to the requirements of grain men.

It is hardly necessary to direct attention to the advertisement of Howes & Ewell on our front cover, as it is too prominent to escape notice. The firm is the oldest in the country in their line of business, entirely responsible and reputable, and enjoy a trade that extends into every part of the world where grain is grown for milling or shipment. The line of machinery built by them is very extensive and worth investigation by such of our readers as contemplate additions to, or changes in, their present equipment.

MUCH dissatisfaction exists in Minneapolis among the grain dealers, over the alleged carelessness of Chief Deputy Inspector Clausen in the grading of grain, as a consequence of which Minneapolis wheat is falling into bad repute at Eastern markets. The chief ground of complaint is that Mr. Clausen has not handled the force of men under him properly, many of them being retained in responsible positions after their incompetency had become patent to all. On the other hand Mr. Clausen says that the "sample" business is the rock Charybdis on which the proper inspection of grain is wrecked. The matter has been placed before the railroad and warehouse commissioners, who will endeavor to settle the matter satisfactorily.

THE New York assembly did a wise act when it rejected the McCann bill against options and futures. This bill made it a felony for any one doing business in the state to sell for future delivery grain or any article of daily consumption among the people, unless the sale of such articles should be accompanied by a true bill of lading or warehouse receipt describing the exact location of the actual property to be delivered, or to charge or receive any premium beyond its current cash value for the future delivery of any such articles unless such charges represented money actually paid for carrying the precise property specified for delivery. Contracts for future delivery made by the actual producer or owner of the articles specified were exempted from the provisions of the bill, though it was provided that such contracts must set forth all the facts in relation thereto, and that no premium could be collected except by the

real holder of the actual property. The results of the passing of this act would be detrimental to legitimate dealings in grain and produce, as well as the speculation against which it was directed, and would ultimately cripple the commerce of the metropolis.

THE orders which are received here by the brokers who are employed by the big wheat clique, all come signed "Nelson," and start from Cincinnati. Who "Nelson" is, is a matter of conjecture; but he is supposed to be Joe Wiltshire, of Cincinnati. The clique has bought not less than 40,000,000 bushels of wheat at Chicago, and owns the wheat at St. Louis, Toledo, New York and San Francisco, and probably half of that at Liverpool. For three months secrecy and mystery have been preserved in the running of this deal; and just what it means and just what it aims at, nobody knows. Conjecture is plentiful, but actual knowledge does not exist outside of the clique and its troubled agents.

It appears that a citizen of hitherto eminently proper St. Louis has had the temerity to violate the great Inter-State Commerce Law. The freight traffic manager of the Louisville, Evansville & St. Louis Road is the individual thus prominently, and no doubt through no wish of his own, brought into notice. He is charged with billing hundreds of carloads of corn from East St. Louis to seaboard points when their real destination was Louisville, thus discriminating in favor of the owner of the corn, and doing violence to the section of the law which requires public notice when rates were to be cut. We hope the United States Court will handle him gently. The bill is young yet, and possibly he hadn't heard of it. (He lives in St. Louis.)

It appears from crop correspondents to the Illinois State Board that the average condition of the growing crop of winter rye on May 1 was not quite equal to the average condition on the same date last year. In the Northern division of the state the average condition May 1 was 90 per cent.; Central division, 99 per cent.; Southern, 90.2 per cent., making the average condition throughout the state 95 per cent. of an average. One year ago the average of the state was 98 per cent. Seven per cent. more land has been devoted to oats than last year. The average condition is 92 per cent. It was 95 per cent. one year ago. Six per cent. greater area has been devoted to spring wheat than last year, but the condition is not so good. This season's crop appears good for only 94 per cent., while in 1886 it indicated 97 per cent.

It requires intellect to build a canal-boat, even if it doesn't seem so. A canal-boat never hurries, and people who think they know everything believe that speed is the only thing that requires meditation. Canal-boats are built for what they can hold. There are four styles of them—bullheads, lake boats, scows, steamboats and consorts. The bullhead is the everyday canal-boat which impedes the ferries. The laker is a size larger, and can stand a sea. The scow is an old acquaintance, but the steamboats and consorts are new. They have come to revolutionize boating and banish the mule. There are 3,900 canal-boats in commission on the state canals. They keep about 1,400 men and boys busy during the season, and pay them \$15 to \$30 a month and feed. Boats travel, as a rule, doubled up—that is, with their two teams pulling both boats.—*New York Sun.*

The United Kingdom's wheat crop of 1886 is officially estimated, says *Beckholm's List* of April 22, at 63,347,885 bushels, against 79,635,769 bushels in 1885, and 82,066,964 bushels in 1884. Deducting the customary English allowance of 6,000,000 bushels for seed, the quantity left for food and manufactures is shown to be say 57,347,885 bushels, against an average annual consumption of about 208,000,000 bushels, indicating that imports of foreign wheat and flour to the extent of 150,652,115 bushels will be required to meet consumptive requirements for the whole of the current crop year. Of the quantity required from outside sources, equal 93,737,763 bushels have been imported from Sept. 1, 1886, to April 30, 1887, in addition to which 15,380,000 bushels are now on passage, of which latter quantity 10 per cent. should be deducted for diversion to the Continent, making a total of 107,561,763 bushels of foreign wheat already provided for, and leaving 43,066,352 bushels to be purchased and shipped in time for arrival and use during the current crop year, or a required average weekly import of 2,392,408 bushels for eighteen weeks. The quantity still required is, however, likely to be somewhat increased by lateness of the harvest, which now seems inevitable.

WATERWAYS

The Lachine Canal, Ontario, was opened May 5th.

Erie Canal freights are solid at 6½ cents for wheat from Buffalo to New York.

The lake shipments of grain from Detroit are increasing enormously every year.

The Government of Ontario will not make as large an appropriation this year for the St. Lawrence canals as in former years.

The canals of the state of New York were opened officially May 7, with the exception of the Black River Canal, which was opened May 12.

The discovery of so-called canals on the planet Mars by Schiaparelli several years ago has been confirmed this year by observers in both England and Italy.

The largest grain fleet that ever left that port moved out from Detroit, Mich., May 1. It included forty-nine vessels carrying 1,707,000 bushels of wheat and 90,000 bushels of corn.

Water was let into the Welland Canal May 1, and navigation opened on the 4th inst. for vessels of twelve feet draft, and on Thursday, the 26th inst., will be opened for vessels of fourteen feet draft.

The people who a short time ago were denouncing the canals as "antiquated," "played out," etc., should examine the clearances. The season opens more auspiciously, so practical canal men declare, than in any year since 1873.

John Rosenfield, of San Francisco, Cal., one of the largest grain operators in the world, recently sent to Liverpool a cargo of 4,000 tons of wheat. This was the largest cargo of wheat ever sent through the Golden Gate on a sailing vessel.

The Banana and Indian River Inlet Company has been formed in Florida to build a canal to connect the Atlantic Ocean with the Banana and Indian Rivers. A company to build a canal 1,800 feet long, from Lake Ola to Lake Carleton, has also been organized.

The Erie Canal needs cleaning out very badly. Many prominent boatmen say that it would be of more benefit to them to have the canal cleaned out than to have the locks lengthened. The mud and stones along the prism of the canal are about two and a half feet deep.

A special dispatch from Ottawa, Ont., says: "The work on the Welland Canal has reached such a stage of completion as to allow boats with a twelve-foot draught of water to pass through. The masonry work between locks 17 and 23, inclusive, has been nearly completed, and between locks 2 and 3, in the vicinity of Port Dalhousie, is now entirely completed. Above this point no further work remains to be done. The Department of Railways and Canals has been notified that the entire works will be completed during the month of August."

The St. Mary's Falls, Minn., Canal is to be enlarged and improved at an estimated cost of about \$5,000,000. The canal was first constructed in 1853-'55, and was enlarged during 1870-'71, to meet the growing demands made upon it. It is now proposed to utilize the two old state locks, surrounding them with a coffer-dam at a cost of nearly \$300,000, and constructing upon their site a new lock 800 feet long, 100 feet wide and 21 feet deep. This canal is of vast importance to the commerce of the chain of lakes, as without it connection between Lake Superior and the lower lakes would, in a commercial sense, be impossible.

It is estimated that the Erie Canal fleet will be increased by 175 boats this year, and not long ago there was a fair prospect that the canal would become inoperative for want of appropriations. The Chenango Canal was abandoned and business men along its line are now clubbing themselves because it is not in running order, as the Inter-State Commerce Law has given the slow but sure-footed canal mule a decided boom. It had not occurred to us before, but it begins to look as though the I. S. C. B. was gotten up with a view to lifting the much abused canal mule out of the mire of disuse, as it were. Gradually the far-reaching effects of this great bill are being felt.

A dispatch from Ottawa, Ont., dated the 14th ult., says: "The announcement in the governor-general's speech was the first intimation to the Canadian legislators that the government proposed to ask parliament to vote money to build a canal on Canadian territory at Sault Ste. Marie. A prominent legislator ventured the opinion that this is the first precautionary step against the passage of a stringent retaliation measure by the United States congress, and that the Canada Pacific Railway had induced the government to take up the work. The Canada Pacific Railway does a big steamship business on Lake Superior every season, and were the use of the Michigan Canal to be refused to them the company's lake traffic would be annihilated.

Paulding county, Ohio, has recently been the seat of an embryo civil war. Two canals, the Wabash & Erie and the Maumee, run through that county, and at Antwerp is located the principal reservoir which feeds them. The canals have not been prosperous of late years. The reservoir occupies a vast section of fine farming land and makes the entire region sickly, and a bill was introduced in the last legislature to have the whole thing abandoned,

but it was defeated. About 200 of the citizens of that part of the county took matters into their own hands on the night of April 25, and blew up the banks of the reservoir with dynamite, burned the locks and timber, cut the dykes and demolished things generally. The state militia was ordered out to suppress the rioters. The damage amounts to about \$6,000.

It is only a few years since a steam canal boat was a great curiosity. Horse boatmen would rush on deck to see her and make comments; occupants of houses along the canal would open their doors and windows that all might see the "curiosity." But now they are numerous, and the time will come when horse boats will be a curiosity on the Erie Canal.

The Hon. Horatio Seymour, Jr., gives the following instance of where a great gain comes on account of canal business: "The expenses of a single boat as computed by experienced men amount to \$2,000 a year. Estimating the number of boats at 3,500, the total amount of their expense would be \$7,000,000. This is paid out for hay, oats and corn, for provisions and groceries, and goes into the pockets of the farmers and merchants along the line of the Erie Canal and Hudson River. The expense of maintaining the canal amounts to a little over a million dollars a year. A more profitable investment could hardly be found. I know of no private enterprise that makes such a return. In addition to all the benefits which I have enumerated, farmers throughout the state have the advantage of a near-by market, which large bodies of population always afford."

ITEMS FROM ABROAD

The threatened increase of the corn duty by the German Government is causing great excitement in Austria and Hungary, to which empire it would entail serious loss.

The 1886-'87 wheat crop of Victoria is officially reported at 12,048,879 bushels against 9,170,550 bushels in 1885-'86, and 10,433,146 bushels in 1884-'85. The exportable surplus of the colony will be about 5,600,000 bushels.

France does not like the idea of Russian wheat being exported from the Caucasus. Its agents in Egypt could be supplied from Odessa, but the French Government is protective to French agriculture and orders them to "foster French commerce."

The increase in duties on cereals, etc., imported into Italy went into effect April 26. The duty on wheat and corn is raised from 1 franc, 40 centimes to 3 francs per quintal of 220½ lbs.; on wheat flour and corn meal from 2.77 francs to 5.50 francs per quintal.

The exports of wheat, linseed and other cereals from Buenos Ayres have reached an unprecedented importance, and the largest maize crop ever witnessed in these countries is now beginning to flow into the riparian markets. All available sailing vessels have been chartered to load grain at Rosario, Puerto Gomez, Colastine, Baradero, San Nicolas, etc.

It is stated that the increase in the Russian duties on imports recently put in force has had the effect of bringing the German Government to a decision to increase the German duties on cereals from 3 to 6 marks as a reprisal. Advices from the Black Sea ports state that the grain shipping trade is in a state of feverish activity, exporters rushing cargoes to Germany in order to glut the markets before the new grain tariff can be put in operation.

It is stated that France will have to import at least 16,000,000 bushels of wheat before her next harvest, as the country is almost bare of breadstuffs. Havre has about 2,200,000 bushels of wheat, but with that exception the stocks at the principal ports are very small. Paris is the only interior city which has a fair quantity of wheat and flour. M. Meyer, of that city, in explanation of the cheapness of flour in France compared with wheat, says that it is owing to the fact that millers, believing that wheat would continue to fall, made sales in blank for future delivery to bakers, who consequently are provided with stocks, while the millers have to manufacture the flour at a loss. This state of things cannot last, but so long as it does the depression in flour must continue.

Exports of wheat from Russia are expected to be small from May to September in 1887. Holding price of wheat at St. Petersburg is too high for shipment to the United Kingdom. Russian exports from Southeast Europe go mainly to Mediterranean ports. Total Russian exports in calendar years have been, in 1883, 85,200,000 bushels vs. 69,432,000 bushels in 1884, 94,530,000 bushels in 1885, and 53,790,000 bushels in 1886. The Austro-Hungarian net exports of wheat and wheat flour in the six months ended Jan. 31, 1887, equaled 6,388,745 bushels, against 6,680,047 bushels the corresponding period of 1885-6. British Indian wheat crop, 1887, is deficient, and the exports thence from Jan. 1 to April 16, 1887, have been 2,068,000 bushels less than for corresponding period in 1886. India in 1886 (calendar year) exported to Europe 43,160,000 bushels of wheat, of which the continent took about 54 per cent. This year India may possibly export 25,000,000 to 28,000,000 bushels in her crop season, of which more than 50 per cent. will go to the continent of Europe. The Australasian wheat crop is also deficient, and Europe may perhaps obtain in 1887, entire, from that source 5,600,000 to 6,000,000 bushels.



Warehouse Receipts—Storage Paid in Advance.

Where warehouse receipts provide for the payment of storage which has been paid in advance, and the warehouseman collects storage from one to whom the receipts have been assigned, he collects it to the use of the original holder, who paid the storage in advance, and who may recover it from him. So held by the Superior Court of Kentucky in the case of *Atherton vs. Bonnie et al*.

Sale of Grain.

In a contract of sale of the contents of a car loaded with grain, the quantity of which is unknown, and the sale is for cash, to be paid as soon as the grain can be weighed, which weighing is necessary in order to ascertain the price to be paid by the buyer, and there is no provision as to the delivery, the property in the grain does not pass to the buyer by the bargain, even though the weighing is to be done by him. The payment of the price is a condition preliminary to passing the title.—*Hoffman vs. Culver, Appellate Court, Illinois.*

Warehouse Receipt.

A warehouse receipt, though not in the commercial sense of the term negotiable, is an assignable instrument. The assignment and delivery of such an instrument vests the legal title to the property in the assignee, without notice to the warehouseman. The statement in such an instrument that the property is to be delivered upon order, upon the return of the receipt, is a representation upon which the assignee has the right to rely. And if, after the assignment and delivery of such an instrument, the warehouseman, without the consent of the assignee, delivered the property to the person to whom he had given the receipt, he will be liable to the assignee for the value thereof, although he had no notice of such an assignment.—*First Nat. Bank of Cincinnati vs. Bates, U. S. Dist. Ct., Southern Dist. Ohio.*

Stoppage in Transitu.

Where goods purchased were shipped to the purchaser and stored, subject to his order, in the carrier's warehouse at their place of destination; and before taking possession of them he made an assignment for the benefit of his creditors, and remarked the goods to the seller; and while being carried from the warehouse to be reshipped back to the seller they were taken by the sheriff, by order of the Court of Probate, pending the appointment of trustees of the insolvent purchaser: Held, that there was no stoppage in transitu by the seller, he having taken no action except, on being informed that the goods were in the warehouse subject to his order, to write a letter for the return of the goods, which was never received.—*Millard vs. Webster, Supreme Court of Errors of Connecticut, New England Reporter, March 8, 1887.*

Warehouse Legislation.

In *Munn vs. Illinois* (94 U. S. 113), the question was as to the power of the legislature of Illinois to fix by law the maximum of charges for the storage of grain in warehouses at Chicago and other places in the state having not less than one hundred thousand inhabitants, and to require persons doing business as private warehousemen to take out a license for such business, and to declare the business to be that of public warehousemen. The constitutionality of such legislation was sustained, and it was held that "where private property is devoted to a public use it is subject to public regulation;" that "property does become clothed with a public interest, when used in a manner to make it of public consequence and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created. He may withdraw his grant by discontinuing the use, but so long as he maintains the use he must submit to the control."

Decision Regarding Storage of Grain.

R. and W., under the name of the Fort Branch Elevator Company, were engaged in buying, selling and shipping wheat, and receiving wheat from farmers on storage, to be returned on demand wheat of the like quality, kind and amount, but not the identical wheat deposited. The company ceased doing business in March, 1884, and P., a farmer who had wheat in store with it, went to the elevator and asked W. where his wheat was, and W. pointed out to him a pile of wheat of nearly 4,000 bushels of his (P.'s) wheat. Then they (W. and P.) went to sell this wheat at Vincennes, but could not get a satisfactory price. They returned to Fort Branch, and on the way W. stopped off at Princeton to get, as he said, a bid for the wheat; but whilst he was there he sold it to W., who was carrying it away in cars, having paid for it, when P. brought an action to recover it as his property. He was defeated, and carried the case (*Preston vs. Witherspoon*) to the Supreme Court of Indiana, where the judgment was

affirmed. Judge Zollers, in the opinion, said: "There are many cases where the owner of property will be estopped to assert his title thereto as against an innocent purchaser for value. We think this is such a case. As we have seen, the plaintiff knew that his wheat was to be, and was, mixed with wheat purchased by the elevator company, and that that company was selling and publicly shipping from the common mass. He therefore knew that others were purchasing the wheat from the elevator company in the usual course of business and paying their money therefor. By putting his wheat in the possession of the elevator company, and allowing it to sell and ship it from the common mass, they clothed the company with an apparent ownership and authority to sell the wheat, which estops them to assert their title thereto as against the purchaser in good faith, for value, believing that to be a fact which the plaintiff, by his conduct, permitted to appear to be a fact. Either plaintiff or the purchaser must suffer by the alleged wrong done by the elevator company, and as between these the loss must fall on the plaintiff. He did not provide for the return of the same wheat stored by him, but relied upon the honesty of the elevator company to deliver to him like wheat when he came to demand it. By this course he enabled the company to deal with the wheat in the elevator as its own, and thus empowered them to do a wrongful act, and the rule is that where one of two innocent persons must suffer by the wrong of a third person, he must be the sufferer who put it in the power of the wrongdoer to cause the loss."

OPINIONS ON THE WHEAT DEAL.

No. 1: "Is Armour interested in the June wheat deal? Of course he is. Isn't he talking it up and saying that wheat is good for a 20-cent advance? Certainly! And why? Because when he forced the clique to come to his terms at the end of last month by tying the money up he did not deliver out all of his wheat in Duluth, Milwaukee and Toledo. He had faith in the legitimate strength of the market and thought he could make more out of the property by retailing than any other way. Manipulation here would be a good thing for him. It would help key up the markets of the world, and it would hang up 13,000,000 to 14,000,000 bushels of Chicago wheat beyond the reach of exporters, and would add to the value of what was left. It is because of his interests in the cash markets elsewhere that he is permitting the gossips to make free use of his name in identifying him as the mysterious 'Man in the Air'! When the proper time comes he will be able to show a clean record and prove that he didn't have anything to do with the deal. He is merely letting the other fellows assist in making a better market for his goods. If they succeed in making money he wouldn't seriously object. If they lose money he won't mourn. He simply don't care. Last month he was against the clique because their interests clashed. This month the clique is benefiting him. The mass of speculators paid for carrying the wheat up to May 1. The clique is paying for carrying a big line through June, and by holding beyond the reach of shippers is serving the wheat bulls and shippers a good turn. When Mr. Armour sells out his wheat, and he may have it all placed by this time for all anybody knows, he will be 'through with that goslin,' and the fortunes of the clique will interest him no farther unless its agents make it a substantial object for him to lug the load through June as he is doing through May."

No. 2: "The clique has boodles of money. It will give the boys a squeeze before the month is done."

No. 3: "It is a shoestring deal. It was a shoestring deal last month, and it isn't any stronger now than it was then."

No. 4: "The market is legitimately strong, and without manipulation will sell 15c higher."

No. 5: "The short interest is now 42,000,000 bushels in June. It is greater by 15,000,000 bushels than it was for May, and the profits of the clique will be correspondingly larger."

No. 6: "The short interest isn't as great now as it was a month ago, and if the clique could not run a corner in May it cannot in June. There will be more risk in carrying wheat through June than through May, and capital will be shy of the last of May than it was the last of April."—*Daily Business.*

THE OLD FANNING-MILL.

Agricultural machinery is constantly presented to the farmers with alleged improvements that have the earnest and sometimes honest indorsement of the sellers, and they are oftener sold on that sort of proof rather than on their real merit. There is perhaps no article more likely to be displaced without good and sufficient cause by the traveling salesman, whose goods are on his wagon ready for delivery, than the farmer's old fanning-mill, and there is no other farm implement that could for a dollar invested in repairs be so easily made as good as new as this same old mill that the man with the new mill is so ready to prove is only fit for kindling wood. Few farmers, old or young, know how to run a fanning-mill and make it do its best work, and we will charitably conclude this is why they are ready to accept the statement of the interested party of the second part that the old mill is "no good," and that the dozen or so screens and patent devices of the new mill will just do the work with little or no intelligent management. The condemned mill goes out under the eaves of the barn and the new one takes its former place, the change being supplemented by a note for \$28 or \$30 on interest, due in a year, with perhaps a 10 per cent. clause if not paid at maturity, which makes the whole arrangement satisfactory to the good talker, who has proved to

the farmer that the new mill would fix his wheat so nice that he would get three cents more a bushel for his crop than his neighbor who refused to buy a new mill.

For thirty years we have believed that there is no farm implement that the average farmer knows so little about as his fanning-mill. We believe three-fourths of the condemned mills will do good work if intelligently used. Mills by thousands are every year set aside that have good frames, good gearing, plenty of screens, simply because the owner don't know that to clean grain requires plenty of wind, an open throat, a slow shake, and a suitable screen for the grain to pass over that will separate small seed and grain from the good part of the crop.

Every farmer knows what the wind is for, but every farmer don't seem to understand that the wind, to have a fair chance, must not be obstructed by several screens when doing its work of separating the lighter stuff from the grain in falling from the chess-board to the screen that carries it to the floor below. The proper adjustment of the chess-board is a matter of trial, and good work can only be had when the shaking motion is so reduced that the grain glides down the screen in contact with it. Many mills are turned out of shops that need a little more machine work to bring the shaking motion down to the desired point, and with a hole or two drilled in the angle iron that runs the shaker, and perhaps a new lower screen, many an old mill would be as good as new, mill peddlers to the contrary notwithstanding.—*Detroit Tribune.*

A FRANK BOARD OF TRADE MAN.

Some ten years ago, when C. F. Dwight, of the Board of Trade, familiarly known as "Foxy," went to Milwaukee to start a sort of arbitrage business between that grain market and this. Like all young men he, of course, wanted to bank with the biggest concern there was in the town, and so offered his account to Mitchell's bank. That Scotchman watched his business pretty close and didn't accept every deposit that was offered. After an introduction Mitchell, in an easy, matter-of-fact way, said:

"I suppose, Mr. Dwight, that you intend to do a little business between here and Chicago?"

"That is it," Dwight asserted.

"There will be simply the collecting of differences between the two markets, and any money made here will go down to Chicago?"

"Yes," Dwight said, "that is the way of it."

"Well, Mr. Dwight," said Mitchell, quietly, "about how much do you suppose that a deposit of that sort would be worth to a bank?"

"Not a d—d cent," answered Dwight promptly and frankly.

"Well, I'll take it," said the Scotchman, captured by Foxy's truthfulness.

THE CHICAGO OPEN BOARD.

The Open Board of Trade, which does business in the shadow of the big board, is struggling with a problem, and there are some people who are uncharitable enough to say that it will have to shut up shop and go out of business. The reasons assigned for this condition of affairs are numerous—sharp competition of the bucket-shops, close margins, loss of paying members, and big expenses. When the big board left its old quarters on Washington street to enter the present palatial structure on La Salle street the little board girded up its loins, leased a lot opposite the big board's quarters, issued \$125,000 in 6 per cent. bonds, and put up a substantial six-story building in which to carry on its business. For a time things went along nicely, and then, for the reasons named above, the board began to get cramped financially. The interest on its bonds amounted to \$7,500, and this, with the incidental expenses, made the total cost of running the institution about \$22,000 per year.

It became evident to a good many of the conservative and sagacious members of the board that it could not be run in this way, and last year Mr. E. J. Noble was named as a candidate for president of the board by the gang who favored getting rid of the old building—that is letting it go for the bonds, but securing a lease of the part needed for business purposes. The majority, however, were against this plan, and Mr. Noble was defeated. Before a great while it became apparent to the most bitter opponents of Mr. Noble that something would have to be done to increase the income of the board or to lower the expenses. The former scheme was thought to be the most feasible, and the stock exchange scheme was boomed. On the strength of this a lot of memberships were sold in New York at \$100, and by this means the board managed to run through last year. It is now claimed, however, that these men and many others in the city will not pay dues this year, and, as a consequence of these losses, together with the decrease of trade on the board, it will be hard for the board to get through this year unless it drops the building. There is an intimation that B. P. Hutchinson—"Old Hutch"—will take the building off the hands of the board, and there is no doubt but that a good many of the members are in favor of such an arrangement. Mr. Hutchinson said yesterday that the only thing which he thought was wrong about the board was that it was too open. Then he added: "Why, I'll give 95 for their bonds; they've been down to 85, but I'll give 95 for them, and you don't suppose I would do that if I didn't think it was all right, do you?"

This, of course, is only one side of the story, and when the other is told a very different face is put on the matter.

Mr. W. D. French, the president-elect of the board, said to a *Tribune* reporter yesterday that the board was in better shape now than it had been for a year, and that there was no danger whatever of its losing ground in any respect. "We have money enough on hand," said he, "and not half the dues paid, to run us this year, and the membership is up to the average. Trading is good, and there is no reason why anyone should take a dreary view of the affairs. We can keep up the interest on our bonds, and hold onto the building, but I am not prepared yet to say what will be done on that score. I shall wait until I get the annual report, which will be ready next Tuesday, before I decide on any definite line of policy, but you can rest assured that the Open Board is all right, and that there will be no shutting up shop."

Other members of the board agreed with Mr. French, and claimed that things did not look nearly so blue for the board to-day as they did a year ago.—*Chicago Tribune*.

DULUTH'S GRAIN TRADE.

The geographical position of Duluth, being, as it is, at the head of the largest fresh water system of navigation upon the continent of America, if not the largest in the known world, assures to this port a certainty of the continuance of her lake commerce for all ages to come. During the past few years the maritime importance of Duluth has so steadily increased that even Chicago, her giant rival, is forced to reluctantly acknowledge that the "Zenith City of the Unsalted Seas" is likely during the coming year to be first on the list as a shipper of grain and a receiver of coal. The head of Lake Superior being the natural outlet, during the season of navigation, of all the produce of that vast country known as the new Northwest, it is not surprising that the development of Duluth's shipping trade has been phenomenal.

The harbor of Duluth is a natural landlocked basin, protected on the lake side by a strip of land six miles in length (Minnesota Point), from all sea or wind, and is sheltered from all off-shore breezes by the lofty range of hills lying to the north and west of the town. There is a natural available dock front extending over six miles in the harbor itself, which, when improved by the system of slips that has been instituted, will afford nearly fifty miles of dock front, suitable for coal and ore docks, elevators, flouring mills and every other industry which seeks an outlet by water for its products and manufactures.

The year 1886 will long be memorable to Duluth shipping men as being the first year in the annals of the port during which they suffered from a scarcity of tonnage. Almost every vessel that entered port was already chartered for the return trip, and a lack of tonnage among other things caused the receipts of coal to fall far short of the amount that was originally designed for shipment to Duluth during last year. The effects of this shortage were widely felt throughout the Northwest during the severe winter just past. The total number of arrivals and clearances during 1886 were 2,180, and the total tonnage of these vessels was 1,694,831 tons. Of this number nearly all of the craft were barges of the largest class, and they towed consorts proportionately heavy in tonnage. It is now a rare sight for Duluth to witness the entrance of a sailing vessel into her harbor unattended by a barge or one of the powerful tugs of the John Owen's class, although the entry of her harbor is one of the best on the lakes for a vessel to make in almost any weather, either under sail or steam. Time is too precious nowadays apparently for owners and shippers to take the chances of head winds, calms, etc.

The size of the vessels in the Duluth trade is made apparent from the average tonnage of 778 tons for each arrival, and when the Sault Ste. Marie is improved to admit of larger vessels being employed, that average will be largely increased. The average of tonnage is greatly reduced by the small class of vessels that are employed in the Canadian carrying trade, the American boats trading here being nearly all of the largest description. There was only one cargo shipped during the entire season to an American port in a vessel of a grade below "A2," such being the high grade of the vessels employed in the Duluth trade.

The value of goods imported from foreign countries, principally Canada, during 1886 was \$69,898, and the duties collected, including duties on the "transit" goods, amounted to \$57,106. The total value of domestic exports was \$2,419,847. The following summary will present the above figures more clearly to the reader:

Total arrivals and clearances.....	2,189
Tonnage.....	1,694,831
Average tonnage.....	778
Value of imports for year.....	\$ 69,898
Collections.....	4,529
Duties on "in transit" goods.....	52,577
Total value of domestic exports, chiefly wheat and flour, to Montreal and Kingston.....	2,419,847

The principal commodities shipped from Duluth to the lower lake ports are grain and all kinds of millstuffs, lumber, silver and copper ores, flour, canned salmon and hides, and iron ore from her sister port a little way down the north shore, Two Harbors. The shipments of wheat alone last year nearly reached 18,000,000 bushels, and these figures will be much exceeded during 1887. Nearly 1,400,000 barrels of flour passed over her docks into the holds of East-bound craft, and 12,000,000 feet of sawed lumber, 54,000 cases of salmon, 18,000 sacks of silver ore, 1,100 tons of silver bullion, together with numerous other articles, went to complete the lading of many a good ship. All of these amounts will be far larger during the present year, and the amount of ore shipped from

Two Harbors last year, 800,000 tons, will also be largely increased.

The elevator capacity at Duluth will be so largely increased this coming summer by the completion of the new elevator already under construction and the erection of several others that are designed and in some cases already commenced, that it is difficult to forecast what the amount of grain to be shipped East this summer may be, but the best judges are of the opinion that the shipments of wheat from Duluth during 1887 will approximate a total of 25,000,000 bushels.

GRAIN STORAGE RATES IN CHICAGO.

[From *Bradstreet's*.]

The question of lower rates of grain storage in Chicago will, it is thought, soon be settled by the Illinois legislature. This time the merits of the case will be better understood by each representative and senator than ever before. In the past the people who have represented the grain interests of the state at Springfield have found it impossible to overcome the influence of the warehousemen, backed by the railroads; and the section of the law relating to the maximum charges on grain has been unshaken for over twenty years. Since the prices for grain, and especially for wheat, have shrunk so tremendously during the past few years, and the cost of transportation has been so largely reduced, the popular clamor for cheaper rates of grain storage has grown louder and stronger. All classes, from the producer to the consumer, excluding the interests above mentioned, are, of course, interested in having this important item of expense down to a point where the owners of the warehouses would be obliged to bear their just share of the general depreciation in commercial values.

The newspapers of the Northwest have agitated the subject very freely and with some success. At Duluth, Minneapolis, Milwaukee, Toledo, Buffalo and Detroit rates have been made lower than at Chicago, though this is designated as the "grain market of the world," and is supposedly the most profitable point to buy or sell agricultural products in the United States. With these arguments to offer the legislators, the friends of cheap storage are more formidable than ever before, and the elevator people are evidently thoroughly aroused. The railroads, it is understood, own the ground upon which many of the warehouses are built, and will carry grain only to the elevators which they practically control.

In this way all outside competition is shut off, and the highest rates permitted by the law are charged. At present the legal rate for the first ten days' storage is $1\frac{1}{4}$ ¢., and $\frac{1}{2}$ ¢. additional for each additional ten days, making the annual rate 15¢. per bushel, including the 4¢. for winter storage. At Duluth the charge for elevating and the first twenty days' storage is $1\frac{1}{4}$ ¢., and $\frac{1}{2}$ ¢. for each additional fifteen days, the annual rate being 10¢. per bushel. At Detroit and Toledo the charge for the first ten days is 1¢., and $\frac{1}{2}$ ¢. for the next ten days, the annual rate being 10¢. per bushel. At Buffalo $\frac{1}{2}$ ¢. is charged for the first five days, with an extra charge of $\frac{1}{8}$ ¢. for vessels to pay, and $\frac{1}{4}$ ¢. for the next ten days, the annual rate being 8¢. per bushel. Minneapolis charges $1\frac{1}{4}$ ¢. for the first twenty days' storage, $\frac{1}{2}$ ¢. for each additional fifteen days, but winter storage amounts to but 4¢., and the season extends from November 1 to June 1, making the annual rate 7¢. per bushel. At New York $\frac{1}{2}$ ¢. is charged for the first ten days and $\frac{1}{4}$ ¢. for each additional ten days, making the annual rate 9¢. per bushel. Milwaukee has reduced its charges to $\frac{1}{4}$ ¢. for the first ten days and $\frac{1}{8}$ ¢. for each additional fifteen days. Winter storage runs from November 15 to May 1, making the annual rate 11¢. per bushel.

Last year large amounts of grain were diverted from Chicago, and it became apparent that most of it went round this city, more because storage rates were too high than that other freight routes to the seaboard were cheaper. On July 1, therefore, the elevators made the first and only reduction in charges they have ever made from the maximum rates granted them by the statute of Illinois. The charge for the first ten days' storage was cut down from $1\frac{1}{4}$ ¢. to $\frac{3}{4}$ ¢., and at the beginning of the year the latter figure was published, in accordance with the law, as the regular rate for the next twelve months. The grain trade was temporarily appeased by what was considered, however, unfair treatment.

The threat of appealing to the legislature at its next session was made, but apparently no attention was paid by the elevator men. Not long after the legislature assembled a plausible bill was introduced by a member who is, wittingly or unwittingly, used by the elevator interests to protect them from hostile legislation. The grain men at once denounced the measure, and pointed out its undoubted authorship. The material alterations proposed were the advancing the charges for the first ten days from $\frac{3}{4}$ ¢. to 1¢., and from $\frac{1}{8}$ ¢. for the next ten days to $\frac{1}{4}$ ¢. for the next five days, and reducing the annual rate from $1\frac{1}{4}$ ¢. to $1\frac{1}{8}$ ¢. per bushel. When it is known that over 75 per cent. of the grain received in Chicago each crop year is moved out again within twenty days, no one is left in doubt as to who would profit most by the passage of this bill.

There is some prejudice felt at Springfield against bills which emanate from Chicago, and have radical changes to make in existing laws looking toward the material benefit of this city. Jealousy of metropolitan success and selfishness is natural and often justified. It is ordinarily on the surface, however, and can be readily dissipated by a few statements of fact. That "Chicago wants the earth" is a popularism that the elevator people have used

with a good deal of power at Springfield in the past, and the friends of reasonable storage rates now find it the most difficult sentiment they have to combat. They take the ground that Chicago asks for a reduction in grain storage charges because her business men are especially near to the evils growing out of these burdensome taxes. They see more clearly even than the producer himself the importance of reducing the cost of transporting and handling grain as prices of other commodities have diminished. In this way, and in this way only, they contend, can Chicago maintain her position as the grain market of the world. They plead that local ambition and enterprise alone could never have given Chicago preeminence in this matter; and they have not. The producers of Illinois, of the West, the Northwest and the Southwest, have made Chicago what she is to-day, simply and solely because of the peculiar geographical or topographical advantages the city possesses over other points. They hold that the farmer should get more for his grain here, and the consumer pay less for it than anywhere else on the continent. The greater volume of business transacted here than elsewhere should enable every one connected with its passage to the consumer to work for smaller remuneration than people at other markets could afford to take. This is the very essence of commercial progress and practical economy. With this idea in view, freight rates, commissions and switching charges have either been cut in two during the past few years or obliterated. Why should not elevator charges be reduced in proportion to other expenses? The people who own the elevators, and those who store grain in country elevators at low rates and sell it for future delivery at Chicago in competition with grain stored here at high rates, they say, must answer this question. The men who own Chicago's elevators have become very wealthy, and they need to be reminded of the fact that their own best good, as well as profit, must hereafter be found in the prosperity of the city and the country naturally tributary to it. As the statute reads, there is nothing defective in it except the figures. The rate for the first ten days' storage should be cut down from $1\frac{1}{4}$ ¢. to $\frac{3}{4}$ ¢., and for the next five or ten days from $\frac{1}{8}$ ¢. to $\frac{1}{4}$ ¢. The rates for the rest of the year should be so graduated as to make the annual rate not more than 6¢., or, at the outside, 7¢. per bushel. Legislators should study this matter and vote for the permanent and best good of Chicago, the state, the producers of the country, and of the elevator people themselves.

To rebut these arguments, the warehousemen point to their great elevators, holding more than 24,000,000 bushels of wheat, corn and oats to-day, and assert that grain is better cared for in Chicago than anywhere else in the world, or else it would not come here. Both sides are acting at Springfield, and the results of their work will probably soon be known.

ONE ON BURDICK.

R. C. Burdick, late Chief Grain Inspector of this state, years ago was employed by Commodore Kittson. Early one spring when the rivers were swollen, in traveling overland by team, the two came to the Wild Rice, and found the ford in apparently bad condition. They camped over night on the banks of the river. The next morning the Commodore said to Burdick, "You strip and swim across." Burdick shelled his clothes, ducked into the icy cold water and swam over. Then the Commodore, stripping off all of his own clothes but an undershirt, and placing a board on top of the wagon, mounted that and drove the horses into the stream. The wind was blowing a raw March gale, and the Commodore shivered as his shirt flapped in the wind. As he gained the other shore he noticed that the water had not risen above the axle hubs. Stricken with wrath, he whirled on Burdick with the remark, "You d—d fool, why didn't you wade over?" And Burdick blurted out in response, "Because you told me to swim."—*Pioneer Press*.

Says the *Herald* of Monticello, Ill., in a recent issue: "To show how the new Inter-State Commerce Law affects this place, the price of corn furnishes an example. The price is now 34 cents per bushel. Grain dealers assure us that under the old way 31½ cents would be a very fair price. This means 2½ cents more on every bushel of corn sold. Such facts as these will go far toward making the law a satisfactory one, despite the kicking of those who had special privileges.

The visible supply of wheat in the United States and Canada is nearly twice as large as it was on July 1, 1886, at the beginning of the cereal year, amounting to 69,000,000 bushels against 35,464,000 bushels July 1, 1885. The total in sight last Saturday, 69,000,000 bushels, exceeded the New York produce exchange's total by nearly 17,000,000 bushels, over 13,000,000 bushels of which are located in Wisconsin, Dakota and Minnesota railway elevators. The total wheat in sight last Saturday is nearly 5,500,000 bushels in excess of total reported on April 1, 1886; 15,500,000 bushels more than April 1, 1885, and twice as much as April 1, 1884, when the aggregate was 34,138,000 bushels. Indian corn visible supplies aggregate over 19,000,000 bushels, over 2,000,000 bushels more in sight than were found by the New York produce exchange last Saturday. The quantity of visible corn is 315,000 bushels in excess of the total visible one year ago, 7,000,000 bushels more than two years ago, and 1,000,000 more than were reported on April 1, 1884. The visible stock of corn has increased 4,800,000 bushels since Jan. 1, as compared with an increase of about 1,000,000 bushels during the first quarter of 1885, of 7,200,000 in 1885, and of nearly 8,000,000 bushels from Jan. 1 to April 1, 1884.

Press Comment.

WILL COMPETITION HELP IT?

The railroads have not decked the new law in such tasteful array as to make it attractive to the public. They resented it from the start as an impudent interference with their business, and their determination of rendering the law as odious as possible has been carried out in their new tariffs. But the law has not yet been in operation a month. Competition between the roads has not commenced to do its work. When it does commence, the load which the roads have in anger saddled on trade will be greatly lessened. Points and persons previously favored will not, of course, be satisfied with the operation of the law, no matter how beneficially it may work for the public at large, for it was the very abuses on which these places and persons thrived that suggested a law.—*Ex.*

CENTERS OF WHEAT PRODUCTION.

The center of wheat production is constantly shifting. At the beginning of history Mesopotamia was the great wheat-producing region, and its product was floated down the two rivers to feed Asia and Africa. Now one steamer suffices to move the crop of that region. Imperial Rome was so dependent on Africa for wheat that stormy weather caused popular panics and insurrections. Now the crop of Cyrene could be carried in a coat pocket, and the total wheat exports of Egypt are only a trifle over \$2,000,000. Within the memory of men not very old the Genesee Valley in New York was the great wheat section in this country; now it hardly feeds its own people. Then Ohio became the center; then Illinois, Iowa and Wisconsin; then Minnesota, Dakota and California. It is quite on the cards that some other center—it may be India—may some day supersede these last sections of the world.

AN ANOMALY.

Boston exporters claim that they must have Western flour and other farm produce delivered to them 5 cents a hundred pounds lower than is paid by merchants on like articles for consumption among the people there, and the carriers have not yet been able to satisfy any person why they cannot afford to haul for both classes of patrons—exporters and merchants, all of the same city, for exactly the same rates of freight charge. These strange acts of the carriers must be explained. The law is reasonable, and will justify any reasonable conduct on their part; but the unreasonable things must be abandoned. It is cheaper to haul an empty train than a loaded one, so there is no loss in letting a losing business alone. The carrying trade of the country must be got into correct and just business methods, and the carriers must be relieved from transporting property at a loss, if they are doing it now.—*Kansas Farmer.*

REDUCING RATES OF GRAIN STORAGE.

The question of reducing the rates for grain storage in Chicago is just now attracting attention in Illinois. An effort is being made by the representatives of the grain interest to procure a reduction of the rates by the legislature. The grain men call attention to the shrinkage which has taken place in the prices of grain during the last few years and to the reduction in the cost of transportation which has also been brought about, and they ask why elevator charges should not also be reduced. Those important items in the expense of the movement of grain should also, they say, be lessened. Agitation has resulted in bringing about lower storage rates at several other cities in the West and Northwest, and the Chicagoans claim that the position of the city as a grain market is being imperiled by the amount of the storage rates. How the demand of the Chicagoans will be treated by the legislature at Springfield remains to be seen. A bill dealing with the subject has been introduced, but does not seem to satisfy the grain men.—*Bradstreet's.*

WHAT A SMALL CROP MEANS.

A relatively small crop of the cereals would mean very much more now than it would have done two or three years ago. The extraordinarily large yield of 1884 gave this country a wheat surplus under which the markets staggered badly, and the resulting weakness in prices was so great that it is only just being recovered from. The outlook of the next year was probably much understated, as was that of 1886, through the inability of the statisticians to grasp the magnitude of the situation in Minnesota and Dakota. But we have gradually reduced the surplus since then, till now it seems probable that very little of the old wheat will be left on hand at the time of next harvest to compete with the new in the markets of the world. Much the same may be said of corn, the supply of which is probably not much more than enough to meet the demands for consumption between this and the time the next crop will be ready for use. The weather of last year was so dry as to give but a scanty crop of hay in the aggregate, though it was a good one in some sections. Hence there is now comparatively nothing to fall back upon as a reason for depressing the prices of what the farmer may have to sell, and it is not impossible that Providence is interposing to enable him to command an advance for his property at least equal to that demanded by the wage strikers in the cities. It is undeniable that the country has less of food reserve at present than at the same time in any one of the several past years. It does not by any means follow that there will be any actual scarcity during

the twelve months that succeed next harvest. The climatic conditions of the United States cover such a wide range that general failure and abundant crops everywhere are alike impossible, while a succession of bad crop years would be necessary to sweep bare all the bins and storehouses of the country. But it does look as if we have reached a point in the change of relation of supply to demand where the long-continued bear pressure in our markets has received a substantial check which will result in a material elevation of the level of quoted values for the great staples of human food.—*Exchange.*

THE CANADIAN "SOO."

Some hostile criticism has been expressed against the proposed construction of the Sault Ste. Marie Canal, but it is fortunately not marked by party considerations. Great as is the public expenditure, enormous as are the pledges made by the government of different local public works for election purposes, we nevertheless hope that this particular matter will be pressed to the front. Great as may be the engineering difficulties, a determined effort should be made to construct the canal at the earliest possible moment. With the relations of the two countries strained as they are now, the temptation to the Americans of retaliating upon Canada by refusing the use of the canal on the American side to Canadian vessels is too great not to be resisted sooner or later, and if the construction of a canal on the Dominion side is possible from an engineering standpoint the work should be accomplished. A contemporary suggests that "when peace returns," if the business of the lakes warrants it, the two canals can be used, one for eastward traffic and the other for westward, and so facilitate the passage of the canals.—*Ottawa (Can.) Free Press.*

WEAKNESS IN ELEVATORS AND WAREHOUSES.

This phrase, made current by the use of a high public functionary, is especially apt with reference to many of the elevators and warehouses of the country. Not long since a colossal flour warehouse at Minneapolis collapsed and spread ruin and flour over a large area. A few days ago an elevator in Chicago that had just been declared "regular" by the Board of Trade burst in twain and let its contents out upon the ground.

Such catastrophes are of altogether too frequent occurrence. Here in America we are so very practical that we often overreach ourselves. Our axiom that a shaft sufficiently strong is strong enough, and that to add diameter is folly, is too often carried to extreme limits. We frequently "crowd the mourners," to use a slangy but expressive figure. Such buildings as warehouses and elevators should not be planned by ordinary carpenters who have, as a rule, but little idea of the real strength of materials. An elevator should be planned and constructed by an elevator builder, who has some idea that such a building has a pressure to sustain; while the ordinary builder's idea is that an elevator is designed primarily to keep the rain off. It always pays to build well, whether the building be a fence, an elevator or a flour mill.—*American Miller.*

A SUGGESTION.

It is idle to expect that capitalists will voluntarily add to the capacity (grain storage) which already seems to be larger than is normally wanted, with the moral certainty that to provide for a repetition of the recent pressure would be to prevent a recurrence. If the dissatisfied ones really wish for a remedy that will permit them to sell untold millions of bushels of wheat in this market next winter they have another course open. That is to agitate for a change in the rules of the Board of Trade that will place upon the buyer of the grain the onus of finding storage room therefor when it is tendered by the seller. This is a rule which obtains in the English trade, but its introduction here might have the effect of killing off the market by discouraging buyers. It is safe to assume that no one is likely to take the risk and trouble of purchasing property to be delivered several months in the future, and hold himself in readiness to pay for the same whenever tendered, if every chance of profit in the operation be cut off by enactment of the legislature or the Board of Trade. Speculative buying and selling involves a risk to both parties, and if either one of them succeed in reducing his risk he will be very apt to see his chance for profit diminish in about the same proportion.—*Tribune.*

A REAL GRAIN BLOCKADE.

A veritable grain blockade occurred at Milwaukee in 1875. That market was then a bigger one than Chicago, and in that year Peter McGeoch was attempting his first big wheat deal. The St. Paul Road has always owned its own elevators there, and issued its own receipts. It is known now that the then general manager of the St. Paul Railroad, Mr. Merrill, was short of wheat at that time. There was plenty of wheat in the Northwest, and no matter how much McGeoch and his associates bought, the St. Paul promptly issued receipts and delivered them to the clique which was compelled to pay cash for them. There was at last receipts in McGeoch's possession for a good deal more wheat than could possibly be gotten into the Milwaukee grain elevators, and he made a protest. Not daunted at all (railroad men were daunted at nothing in those days), Merrill promptly replied that the Milwaukee & St. Paul Road had the right to issue a warehouse receipt for wheat just as soon as it was loaded into one of its cars, whether that car stood in Milwaukee or was on one of the side-tracks at a shipping station in Dakota. Finally, one Sunday morning, after the load had gotten very heavy, McGeoch and Robert Lindblom started to

walk up the St. Paul track to see how many wheat cars were on the track. They tramped for ten miles out of Milwaukee and saw nothing but cars loaded with wheat. From that point as far as the eye could reach there were wheat cars. It broke the hearts of the would-be cornerers. Monday McGeoch failed.—*Mail.*

A WHEAT TRUST.

In this day of monopolistic "trusts" of one kind and another, why wouldn't it be a good idea to form a "Wheat Trust"? Wheat raisers could become stockholders according to the quantity of wheat they raised, exchanging field receipts (instead of warehouse receipts) for certificates of stock in the "trust," and getting returns in the form of dividends. It would only be necessary for ambitious promoters of a wheat trust scheme to put themselves in communication with 2,000,000 or 3,000,000 farmers whose co-operation would be necessary to the success of the enterprise, and to spend \$200,000 or \$300,000 in postage stamps and printers' ink, traveling expenses, etc. This expenditure would be merely preliminary. An additional \$500,000 or such a matter would be necessary to "fix" legislatures which might require solid arguments to be convinced that there was nothing criminal in wholesale manipulation of the breadstuffs markets. These little matters arranged, the Trust could engage in business and put wheat up to \$1.50 a bushel and flour up to \$11 a barrel. There's millions in it. The promoters should be young and healthy men, as forty or fifty years might elapse before the scheme could be put in working order and something realized therefrom, and of course nobody would want to start in on such a project and get nothing from it until after death. Shrouds are not provided with pockets in which to put "Trusts." The Wheat Trust idea is not patented.—*Daily Business.*

THE SITUATION AT BUFFALO.

Grain is accumulating in large volume at the lake ports, and Buffalo receivers confidently expect that they will be able to tax the full capacity of the canals during the coming season. What rate the railroads will make on grain from Chicago and other Western points to New York is not at present certain; but among the shippers by the water routes, a cheerful confidence prevails; for inasmuch as the railroads cannot, under the new law, offer special inducements in the shape of rebates for the purpose of preventing shippers from patronizing the canals, it is believed that the latter's grain traffic will be considerably increased. While we trust, however, that the friends of the water routes may enjoy all the advantages which honest competition may give them, the fact must not be overlooked that the railroad managers are not debarred from combining upon a minimum rate which, in case of an influx of grain from the West, may induce them to carry grain at a price very close to that charged by the water routes. We notice, however, that lake tonnage has increased considerably, and that there is a probability that, for some time at least after navigation opens, all of it will be fully occupied. So too with the Erie Canal boats; many new ones have been built during the past winter, the mule and the tow-path are gradually but surely giving way to steam, and a ho se boat in the course of a few years will be a rarity on the Erie. The Champlain and the Oswego Canals are also preparing for a good season, and the boatmen, it would seem, are likely to receive a living rate for several trips at least. It is probable that the canals will open soon after May 1. The Hudson is now tolerably clear of ice, and a large number of boats are now leaving their wintering basins in New York, Brooklyn and Jersey without any freight aboard, so that they can make the passage to Buffalo as soon as possible, and thus secure the advantage of the highest freight that will be offered there.—*Marine Record.*

NOW YOU HAVE IT.

"Now that the curtain has been rung down on the first act of the celebrated May wheat deal, it is easy enough to see what it all means," said Moneybags, the broker. "Armour was caught on a huge straddle between this market and Duluth, Milwaukee and Toledo, having bought several millions at those points and sold against it here besides selling against his cash Chicago holdings. He advertised his position at the first intimation of a squeeze and the manipulators clapped their hands in gleeful anticipation of the grab they were going to take at the 'Old Man's' millions. They had him trapped at last, and they were going to have fun with him. The 'Old Man' gave it out that he would deliver his Duluth and Milwaukee wheat on Chicago contracts 'if he had to.' Still the manipulators didn't tumble. Meanwhile the sly old fox found out who the cornerers were (if he didn't know all the time), acquainted himself fully as to their resources and concluded it would be easier and cheaper to forestall them at the banks than to try to ship in millions of bushels of wheat. He accordingly got into the money market ahead of them and tied up enough funds to block their game. They were not only not able to carry out their intentions, but at the last moment were compelled to go to the 'Old Man' for assistance. Having forced the clique to let May down to its natural discount under June he closed up his wheat deals in this and other markets, and then allowed himself to be persuaded to employ a portion of his idle funds in carrying 4,000,000 to 5,000,000 bushels of wheat through June, taking his usual precaution not to get the worst of it. He impressed the clique agents, who called to see him, with the fact that he is not doing business for his health. He also made it easy for other regular carriers to find money where previously there were 'no funds.' The financial horizon cleared. No, Armour has not been taken into the deal. His interest is simply that of a

carrier for the money there is in it, but as he is shipping out his Milwaukee wheat and has refused to carry the Duluth load through June, it will be seen that his interests are no longer antagonistic to those of the manipulators and their chances are thereby greatly improved. Unless driven to it for the protection of his own interests the 'Old Man' never bucks a deal of any kind. He has been there so often himself that he has a soft side for the fellows who tackle the second-hand sellers of property. There you have the whole story."—*Daily Business*.

A POSSIBLE ROUTE FOR NORTHERN WHEAT.

The Grand Forks, Dakota, *Herald* has an article on railroad freight charges full of suggestive information. Three years ago the price of wheat along the territory to the south of Manitoba was virtually fixed by the railroad corporations and the millers' ring of Minneapolis. The millers' ring is now broken up, there are three rival roads now competing for Red River Valley traffic, and there is also on the Statute book of the United States a new law to regulate inter-state commerce, yet with all these apparent advantages, the *Herald* looks eagerly and hopefully forward to the completion of the Hudson's Bay Railway as the surest safeguard for northern Dakota and Minnesota from the exactions which, in spite of all legal checks, the freight carriers and commission men will manage to take out of grain before it reaches Liverpool. Another curious point is that the *Herald* looks for immediate relief from the C. P. R. just as the grumblers here are looking to Duluth. The high elevator and insurance charges now levied at Duluth discount considerably the advantages of that rising port, and if by shipping over the H. B. Ry., or by the C. P. R., these Dakotans can better themselves, it will so far be an argument in behalf of Manitoba, which is so much nearer and has fewer difficulties in the way. The improvements on the Red River channel all the way up to Breckenridge are being rapidly continued so as to provide an easy and safe waterway to St. Vincent, and if the Dominion Government do the same by improving the passage at St. Andrews, a few years hence may see strings of barges freighted with Red River wheat unloading at some Northern landing on Lake Winnipeg, and a heavy and profitable traffic going on for several months in the year. No one understands the situation better than the *Herald*, and it is gratifying to find that even with competing railroads converging on that rising city, that paper still looks upon the Hudson's Bay as the most hopeful point of shipment for the Liverpool market. One thing is certain: it would be impossible for anyone on that road to doctor and dilute the quality of our grain staple as is now being done everywhere in the East. Nothing but the genuine article could find its way to the Northern port.—*Northwest Farmer*.

REASONING NOT ALTOGETHER SOUND.

A lengthy article on grain gambling appeared lately in a Chicago journal. Many truths were presented, reflecting little credit upon, and being in the main not at all commendatory of, this latter-day system of dealing in options, having some line of cereals or produce as a basis of operations. But in drawing a comparison between option dealings in exchanges proper and in outside and private institutions, dubbed "bucket shops," so termed from dealing in small amounts or "bucketfuls," the paper cited endeavors to make it appear that the operator is working against great odds by patronizing the small private instead of the large public institution. The whys and wherefores by which this conclusion is reached are not, however, thoroughly convincing. It is stated if the large number of persons who make their wagers on grain on the outside, were to throw their business into the legitimate exchange, greatly increased life would be infused into the latter, and the army of small operators would also be benefited, because they would then exert an influence in shaping values, as their combined power on the floor of an exchange would be considerable, while on the outside it goes for naught. Thus, if 10,000 small operators, all having faith in wheat going higher, were to order purchases on 'Change, where values are established, their orders would aid in advancing the market, while if they operated in outside channels their purchases would have no special effect on prices, and those interested in depressing values would meet with so much less resistance. That thorough concentration of this business is to the interest of the exchanges making it a specialty, we admit, and it may also be for the interests of operators, but not for the reason above stated. By following this advice the purchasers must naturally put the market up on themselves, a thing which a shrewd operator who is buying endeavors to avoid. Those well versed in speculating, aim to depress values to the greatest possible extent when purchasing, and regarding it in this light, buyers are certainly no worse off by operating on the outside than at the fountain head. A much better reason for confining these dealings to narrow bounds and discouraging small transactions is that the greater the capital required to engage in it, and the fewer the opportunities presented, the better off will be the community at large. The average outside operator, whether gambling in bucketfuls or shiploads of wheat, will in nine cases out of ten be worsted sooner or later. Of those who make it a business and their special study, who are in possession of every possible facility to take advantage of the market, only a small minority make a financial success. Another argument advanced by the Chicago paper in accounting for the losses of outsiders engaged in dabbling in grain contracts is that they are almost invariably as a body on the "bull" side, having a fear of selling something they do not possess, thus giving large operators, who assume the role of "bears," the opportunity to load up and smother

out of sight the small fry. This is erroneous in so far as it intimates that the general public is better or worse off either "bulling" or "bearing." Equally heavy losses have been sustained in both positions. Heavy operators, controlling immense capital, can and frequently do, by sheer force of coin, so shape the market temporarily as to absorb large profits and wipe out or greatly cripple the weaklings, no matter which side of the market the latter are on. At times, by so doing, heavy operators may eventually injure themselves, but this is poor consolation for, and does not restore anything to, those who had been previously crushed. Whether a "bull" or "bear," or the former at one time and the latter another, whether operating through Board brokers or otherwise, there is almost an absolute certainty of eventual loss to those who make a side business of this species of speculating.—*San Francisco Country Merchant*.

THE LOVERS AND THE CORN.

Away in the days of King Cambyzes,
When Egypt worshipped Osiris and Isis,
A youth and a maiden often met
When the lotus flowers with the dew were wet,
And wandered away by the sluggish Nile,
O'erlooked by the Sphinx with inscrutable smile;
They walked by the fields of waving corn
When Memnon's harp saluted the morn,
And saw the pyramids arise from the sand
And tower to heaven at a tyrant's command;
And when night came down with its magic spell,
And a hush on temple and palace fell,
They told to each other the old, old story,
That turns the gloom of the earth to glory;
For love then was as young as it is to-day,
And youth and maiden have wooed away.

But the maiden, she with the dusky brow,
With sweet lips that oft had uttered love's vow,
Fell sick and died; and the mourners came
And around her they burned the sacred flame,
And the bearded priests the ritual said,
And in robes of silk they swathed the dead;
And the lover, weeping as those who mourn,
Placed in her hand three grains of corn;
And they bore her o'er the sacred river
On whose banks the reeds in the hot winds quiver,
And laid her down in here lonely tomb,
Deep bedded in stone, enshrouded in gloom;
And the lover turned in tears from the spot,
And he, too, died, and both were forgot.

Three thousand years had passed away,
When a scientist wandered East one day
And found that tomb 'neath the welcome shade
Of the whispering palms. Then with ax and spade
He cleared the earth and he loosed the stone,
And saw the maiden lying alone—
A shriveled lump which no likeness bore
To her who had walked by the Nile's low shore,
Away in the days of King Cambyzes,
When Egypt worshipped Osiris and Isis.
He felt a subtle and strange perfume
Rise up from the narrow and darkened room,
Like that which comes from an oaken chest
Into which long ago sweet roses were pressed;
And the dusky mummified maid seemed to sigh
As they lifted her out to the light of the sky,
And her hand still held the grains of corn
Put there on that sad and tearful morn,
When her lover gave her his farewell kiss
And buried with her his dreams of bliss.

They bore her far across the sea,
To a land with a fairer dynasty
Than e'er had Egypt when Pharaoh reigned,
And its altars' marbles with blood were stained;
And they took the corn from her helpless hand,
And planted it deep where the prairies stand,
And the seed of life, that had long been quiet,
Began to thrill, to move and to riot;
And it burst the earth that held it down,
And caught the sunlight which flashed like the crown
Of an emperor, and nodded in glee
To the wind that swept from the Western sea.
In its waving beauty it looked as fair
As the strands of that old-time maiden's hair;
And when lusty autumn came reeling along,
With cries of harvest-home and with song,
It whispered and rustled, as once by the Nile
In the light of the youth's and maiden's smile.

So it grew and spread till the spot was green
With its glory and bright with its golden sheen;
And the radiant butterfly bent o'er each cone;
And the bee passed by with his organ drone;
And the birds were tuning their little throats,
And filling the air with flute-like notes.
And one summer eve, ere the sun's eclipse,
When his blood-red sword in the West he dips,
Another youth and a maiden came
With blushing cheeks, like the dying day's flame,
And hand in hand walked by the corn,
As two before them had done one morn
'Neath the Orient sky in the shadowy past,
And two young hearts were happy at last;
And it seemed as if when he smoothed her hair,
And vowed there never was aught more fair,
Each waving stalk felt a tremor sweet,
For old and new were then complete,
For love has always an Easter tide;
Though all else perish, it never has died.
Its tale will be told while grows the corn—
The tale that was told when Eden was born.

—*Confectioners' Journal*.

J. T. Cowan, Paton, Iowa, supplies the boiler in his elevator from a well some 100 feet deep, and has recently put in a new lift and force pump to raise the water, purchasing the same of Geo. L. Jarrett, Des Moines, Iowa.

AN EMERGENCY RULE.

Well posted elevator men, says *Daily Business* of this city, anticipate a movement of grain between the opening of navigation this year and the end of May which will give capacity for the reception of anywhere from 7,000,000 to 9,000,000 bushels of additional wheat during the month of May. If, however, the fears of the wheat shorts should prove well grounded, and the deal in May wheat should develop into a "corner," and an effort should be made to "corner" storage room, a barely possible but not probable contingency, the Directory of the Board of Trade will probably be called upon to construe Section 1 of Rule 21 of the General Rules of the Chicago Board of Trade, with the emergency clause attachment. The Rule, with the emergency proviso, reads as follows:

All deliveries upon contracts for grain or flaxseed, unless otherwise expressly provided, shall be made by tender of regular warehouse receipts, which receipts, except in the case of flaxseed, shall have been registered by an officer duly appointed for that purpose. All such warehouse receipts shall be made to run five days from date of delivery, on regular or customary storage charges; which regular or customary charges shall follow such warehouse receipts, and be chargeable upon the property covered by the same, and shall be issued by such houses as are in good credit, are conveniently approachable by vessels of ordinary draft, have customary shipping facilities, and are, in other respects, conformable to such requirements as may be prescribed by the Board of Directors.

Provided, That the Board of Directors shall have power, when in their judgment an emergency exists requiring more storage room than can be supplied by the regular elevator warehouses, to declare any storehouses, vessels, or places suitable for the storage of grain or flaxseed within the city limits—wherein the cost of delivery to vessels or railroad cars shall not be greater than such as is made by regular elevators for the same service—to be regular places for the storage of grain deliverable under the rules of the Board of Trade.

The Board of Trade will unquestionably afford all possible facilities to country shippers and local receivers who make an honest effort to deliver property in satisfaction of contracts. There are no means of knowing what stand the elevator companies will take with regard to cargo grain should there be any such in the "creek" for which storage cannot be found in regular elevators. They may or may not issue receipts covering cargo grain or grain in sheds or other emergency warehouses. That is a matter for the companies themselves to determine. In case of extreme urgency the Directors might put a very liberal construction on the emergency clause, so far as it relates to cargoes of grain in vessels, but they have never before been called upon to construe that portion of this rule, and the precedent is yet to be established. In fact, the powers conferred on the Directors under the terms of that proviso are practically unlimited. Under them the Board of Trade can grapple with any emergency that is liable to grow out of restricted storage capacity.

THE HISTORY OF CORN.

The word corn is perhaps of Saxon origin, and signifies the grain or seed of plants used for making bread. According to the European use of the word there are several species of corn, such as wheat, rye, barley, oats, millet, rice, maize and peas, lentils, etc., each of which has its peculiar qualities of usefulness. In this country the term is applied to maize or Indian corn only.

Much has been written on the origin of this grain. Bonafous, in his *Histoire Naturelle du Maïs*, expresses the opinion that it came originally from Asia. Mr. J. Crawford, who resided nine years in Japan, says it had been cultivated in the Asiatic islands under the equator from a very ancient period, and thence it was carried to China, and from there to India and Turkey.

Gerarde, in his *Natural History of Plants*, written in 1597, under the title "Turkey Corn," describes seven kinds, and a different kind called "Corne of Asia." While both these authors claim that maize came first from Asia, they admit that after the discovery of the New World it was re-introduced from there into Europe.

Humboldt and other reputable travelers and writers controvert its Eastern origin, and do not hesitate to declare that it originated solely in America. In proof they cite the following facts: No ancient writer has noticed it, neither has it ever been found in any ancient tumulus, sarcophagus or pyramid; nor is it represented in any ancient Eastern painting, sculpture or other work of art.

Joan de Cuba, who wrote the "Ortus Sanitatis," as late as 1491, the year before Columbus landed on American soil, makes no mention of it; but Vega, one of the earliest Peruvian historians, says that the palace gardens of the Incas were profusely ornamented with maize in gold and silver, with all the spikes, grains, stalks and leaves, and that representations of it have been found in the ancient burying places of that country. These are strong proofs not only of the wealth of the Incas, but of the high estimation in which this important grain was held by the ancient Peruvians.

The preponderance of testimony is in favor of the position that maize is indigenous to America, and that it had been cultivated long and extensively by the natives before the discovery of the Western Continent. In further proof of its American origin it may be stated "that it is still found growing in a wild state from the Rocky Mountains in North America to the humid forests of Paraguay, where,

instead of having each grain naked, as is always the case after long cultivation, it is covered with glumes or husks."

It is by nature a tropical plant, but its flexibility enables it to acclimate readily in any suitable soil from the equator to the 45th° parallel, and in favored situations 50°, north, and to the 44th° parallel south. But as it changes latitude it also changes somewhat in character, and new varieties are often obtained by these climatic changes.

The plant is tender and most sensitive to atmospheric influences. At every stage of its growth, from the time the *plumule* appears above ground until it is fully ripe, frost will kill it—and we all know from experience how essential warm nights are to insure rapid growth.

Because of the cool, damp atmosphere of the island, corn will not mature in England. In Brittany the grain seldom ripens, but it is a profitable crop for fodder, yielding on the sandy soil of that province much larger crops of rough food than either clover or lucerne.

Maize is more or less extensively cultivated in Mexico, the West Indies, most of the South American States, France, Spain, Portugal, and Southern and Central Europe generally; Western Africa, India, China, Japan, Australia, the Sandwich Islands, the Azores, the Madeiras, and numerous other ocean isles. Its preference is a deep, rich, warm, dry soil, hence we find it most at home in the fertile plains of the United States, especially those in the Mississippi basin, for here we find the greatest production in this country.

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The total production of the United States for 1884 was 1,936,176,000 bushels, of which 1,503,888,000 bushels were produced in the thirteen states lying altogether or chiefly within the lines of the ellipse, and 432,288,000 bushels in the remaining states and territories.

The first successful attempt of the English to cultivate corn in North America was in 1608, on James River in Virginia.

The corn crop of this country in 1840 was 377,531,875 bushels; in 1850, 592,326,612 bushels, an increase of 56 per cent. The increase of yield of 1884 over that of 1850 was 1,344,000,000 of bushels, or 227 per cent.

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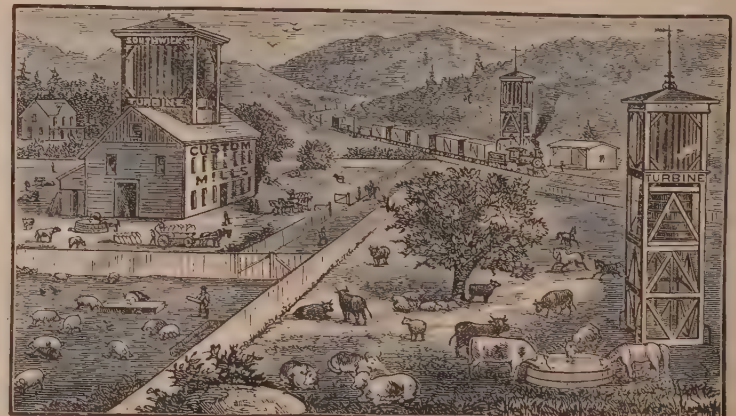
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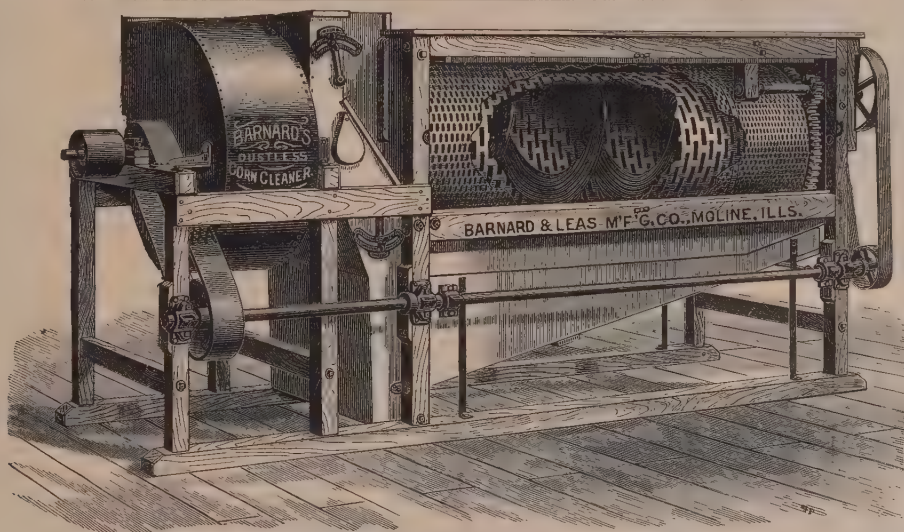
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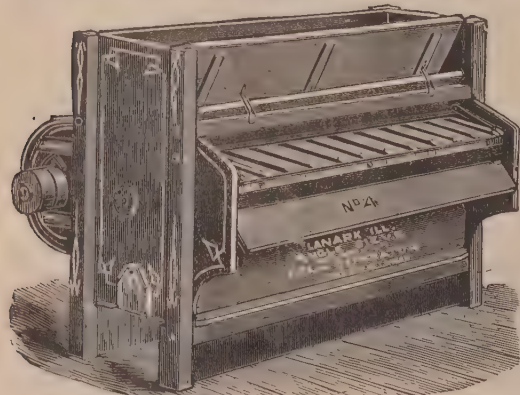
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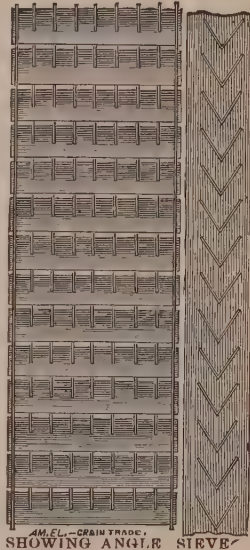
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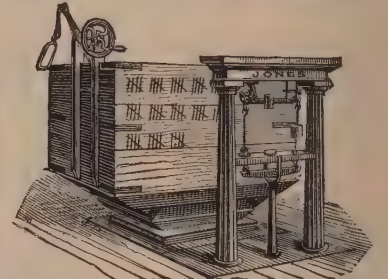
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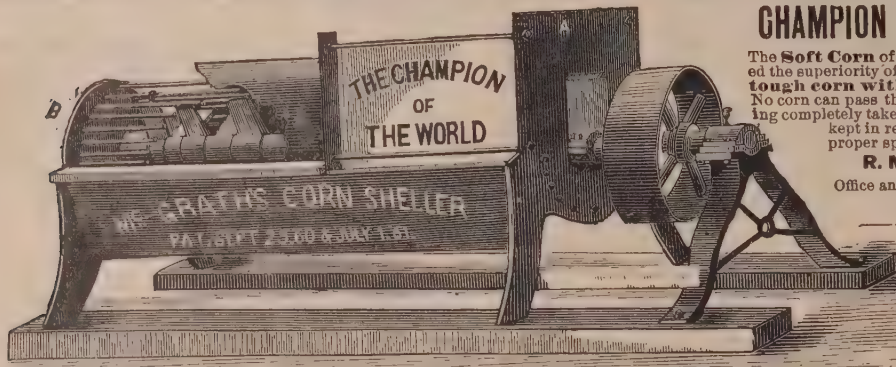
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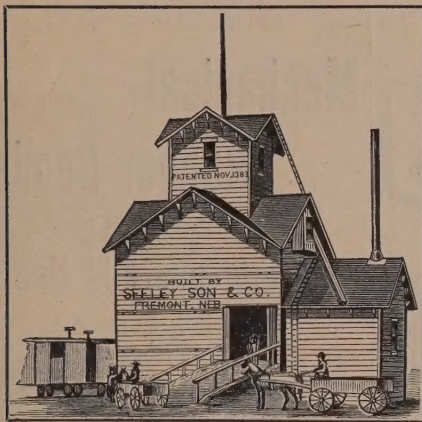
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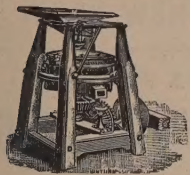
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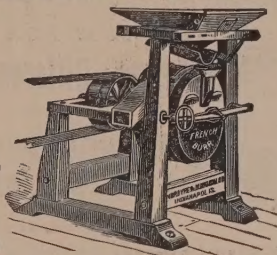
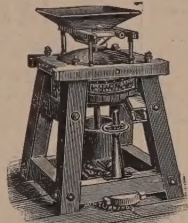
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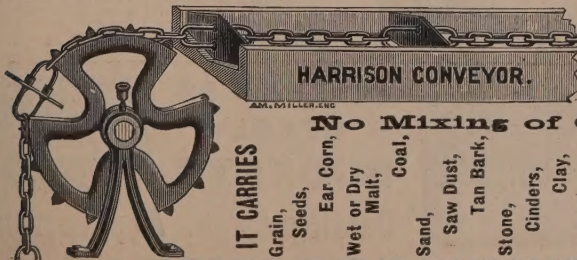
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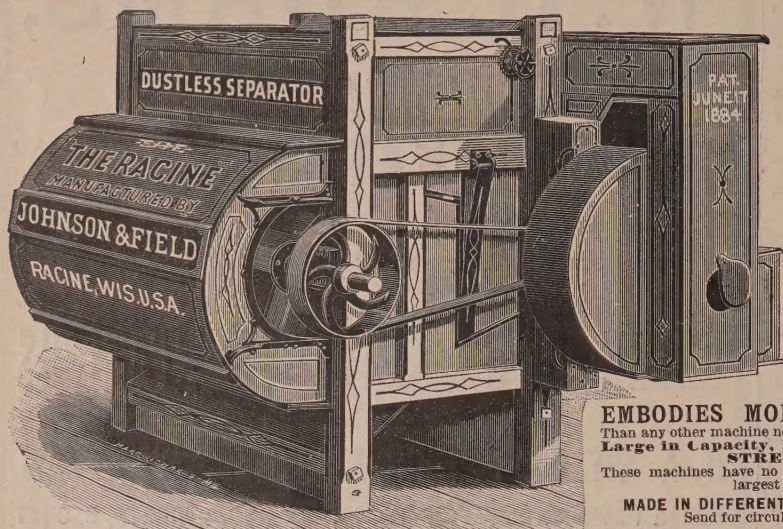
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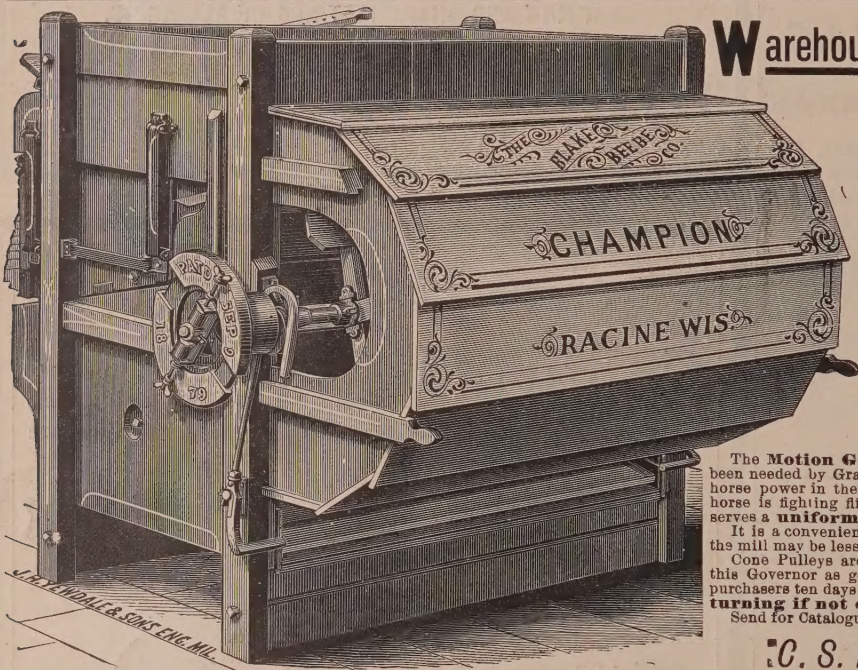


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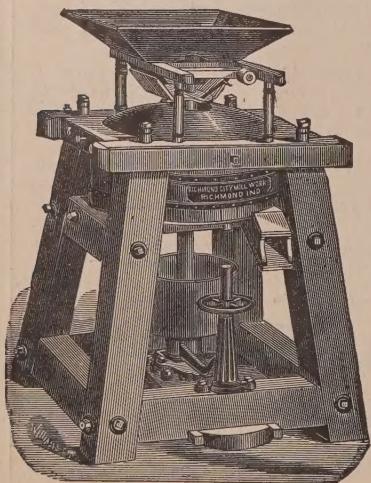
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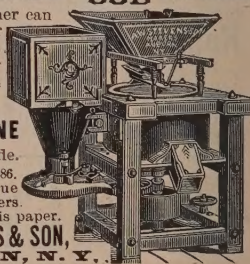
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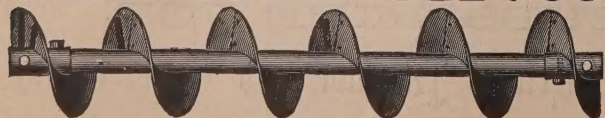
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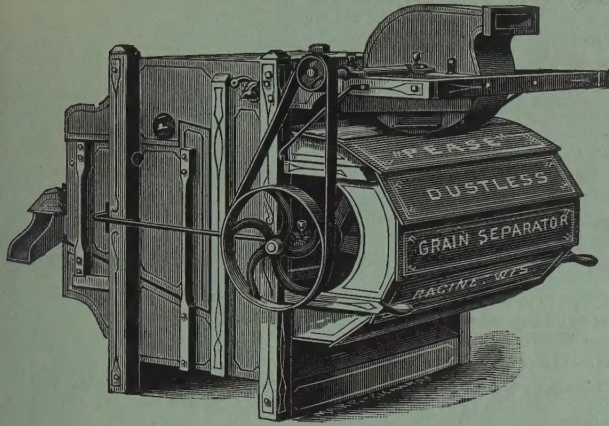


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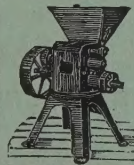
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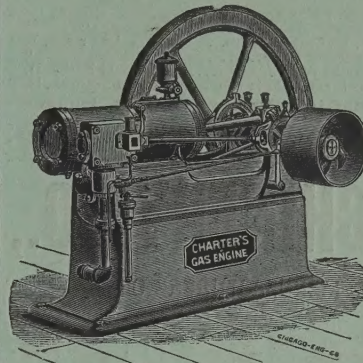


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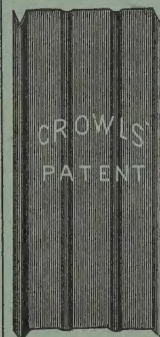
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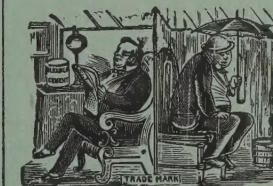
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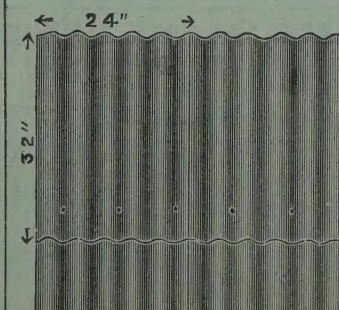
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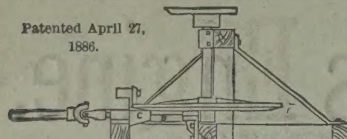
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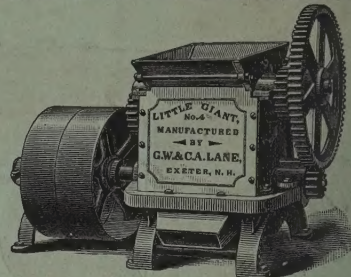
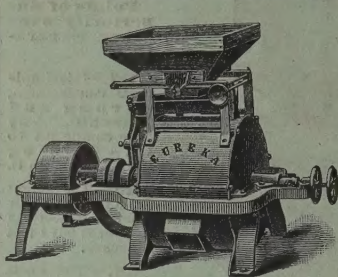
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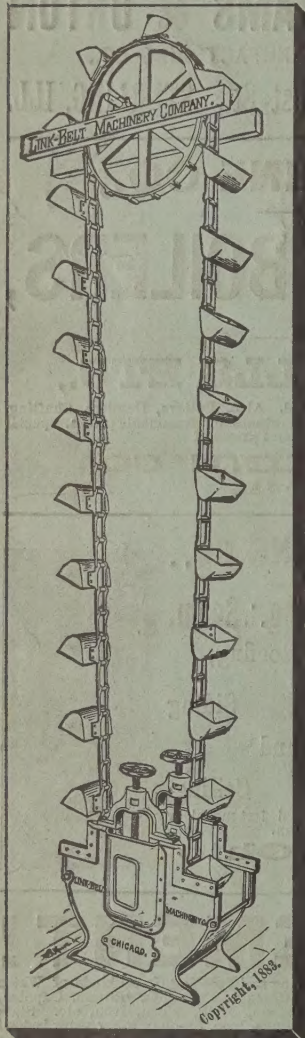
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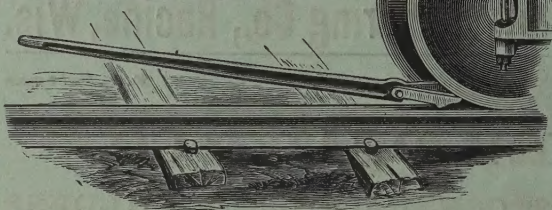
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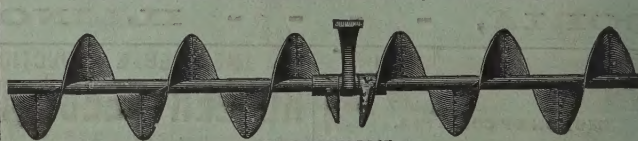
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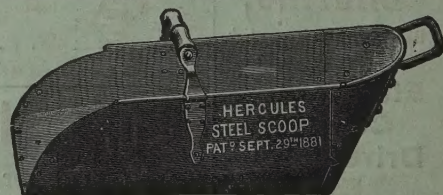
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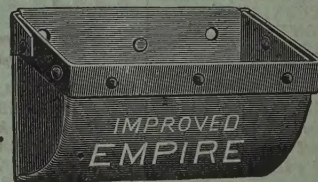
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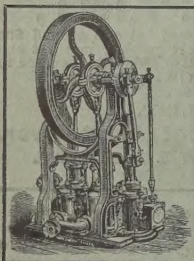
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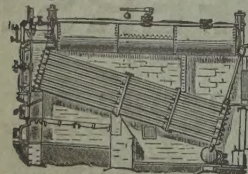
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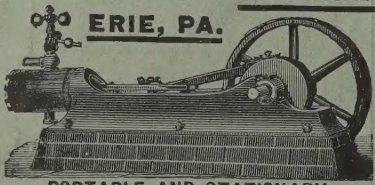
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